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# ADMINISTRATION

## 56-01 Kerr Amalgam Statement

In coordination with HQ USAF/SGD, the following statement regarding Kerr amalgam capsules has been released.

Multiple federal service dental clinics have reported that mercury is being released from Kerr amalgam capsules during trituration. Users have reported droplets of mercury in the mixing chambers of their triturators and some have actually witnessed mercury ejection during trituration. This problem was first identified to the USAF Dental Investigation Service (DIS) in August 1997 and was the subject of a lengthy DIS Problem Resolution Assistance Program (PRAP) investigative action that was completed in April 1998. During this PRAP action, DIS confirmed with Kerr Corporation sources that a defective amalgam capsule design existed that was responsible for the mercury release. It was also revealed that mercury release during trituration has been an ongoing problem with these capsules. The mercury release was replicated and confirmed in the DIS dental material testing laboratory. Recently, Kerr has redesigned its amalgam capsules in order to remedy the problem. In addition, Kerr has suggested that the use of their proprietary amalgam capsule activator instead of hand activation will reduce/eliminate mercury release.

Since the close of the PRAP action, DIS has received additional reports of mercury release from Kerr capsules. DIS has examined the capsules exhibiting mercury release and has found that some are of the new design that was purported to have solved the mercury release problem. DIS testing has confirmed mercury release from these newer capsules by testing in our laboratory regardless of whether the proprietary capsule activator was used or not. The Kerr Corporation confirms that problems still exist with mercury release from its capsules and is attempting to further modify the capsule design and capsule assembly to correct the problem. Kerr has stated that it will not assume responsibility for damages incurred from the use of its capsules beyond capsule replacement.

Federal clinics should be aware that mercury release from Kerr capsules is still both a real and potential problem. Mercury release during trituration has been demonstrated in each of Kerr's amalgam products (Tytin, Tytin FC, and Contour). Dental clinics may unknowingly experience accumulative mercury leakage within triturators until the leakage amounts become overtly evident. Presently, Kerr has no tracking mechanism to identify potentially defective capsules. Base Bioenvironmental Engineering policy states that decontamination costs are borne by the agency that owns the product (i.e., the dental clinic). DIS has also discovered that no peer-reviewed mercury decontamination protocol exists for amalgamators. DIS has received reports from federal clinics that local attempts to clean contaminated amalgamators have been labor intensive and largely unsuccessful. An outside contractor quoted one federal facility a fee in excess of $2000 to attempt to decontaminate three amalgamators. It should be noted that no known Occupational Safety and Health Administration thresholds have been breached in the breathing zones of both dental personnel and patients.

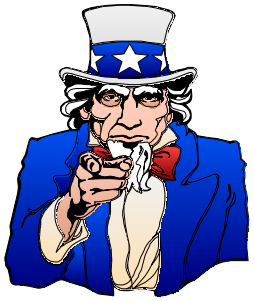
In view of the aforementioned information, it is recommended that federal dental clinics exercise caution in the use of Kerr amalgam products until the mercury release problem has been rectified and should consider an alternative capsule design. Suitable replacement spherical alloys are commercially available for local purchase and include Lojic+ (Southern Dental Industries), Megalloy (Dentsply/Caulk), and Valiant (Ivoclar). Currently, only Valiant has a National Stock Number listing (NSN 6520-00-149-0132 and 6520-00-149-0123). Questions and further information may be addressed to Lt Col Howard Roberts at DSN 240-3502, (210) 536-3502, or roberts@alaoc.brooks.af.mil.

## 56-02 CDC Posts Oral Cancer Prevention Recommendations

*Preventing and Controlling Oral and Pharyngeal Cancer: Recommendations from a National Strategic Planning Conference* is now available at the Centers for Disease Control and Prevention (CDC) web site www.cdc.gov/nccdphp/oh under "What's New." This report presents the highlights of a 1996 conference co-sponsored by the American Dental Association and the CDC. A 1997 follow-up meeting listed ten recommendations that should have priority in any program for preventing and controlling oral cancer. This report is an excellent source of information concerning oral cancer statistics.

(Lt Col Roberts)

## 56-03 Request for Clinical Evaluators



DIS is always looking for active duty dental officers (including dentists in the Public Health Service and Veterans Administration) who are interested in trying new dental products and providing DIS with their opinions about the clinical handling characteristics of the products. In particular, there is currently a need for evaluators to evaluate new dental materials such as cements, compomers, impression materials, bonding agents, and resin composites. The evaluation process is straightforward, simple, and gives you the opportunity to work with state-of-the-art products. If you are interested in becoming an evaluator or would like additional information, please e-mail Lt Col Charlton at charlton@alaoc.brooks.af.mil or call DSN 240-3502.

(Lt Col Charlton)

## 56-04 Meeting the DIS Staff

In each issue of the ***Dental Items of Significance***, we feature a different member of the DIS staff and provide some brief biographical information about him or her. We hope that in providing a brief biography of the staff, we will become more familiar to you so that when you call with a question or to discuss a matter, you will feel that you have a friend at the other end of the line. This issue's staff member is Mr. Dan King.

Dan King is the Dental Investigation Service's contract Biomedical Engineering Technician. Dan, born and raised in Greenville, Ohio, began his Air Force career on August 7, 1968. After basic training at Amarillo AFB TX he trained at Chanute AFB IL as a Cryogenic Fluid Production Specialist (Production of Liquid Oxygen and Nitrogen). His first assignment was to Cigli AB, Turkey. After Cigli AB closed in June of 1970, Dan was reassigned to reopen the Liquid Oxygen Section at Zaragoza AB, Spain. In January 1973, he returned to the United States and retrained into the Biomedical Equipment Repair career field at Sheppard AFB TX. His assignments as a biomedical repair technician include: USAF Regional Hospital, Eglin AFB FL (1973-1975); NCOIC of Biomedical Equipment Repair at USAF Clinic, Hanscom AFB MA (1975-1976); Air Force Medical Research Laboratory, Wright-Patterson AFB OH (1976-1980); USAF Hospital, Grissom AFB IN (1980-1985); Superintendent of the Far East Medical Equipment Repair Center USAF Hospital, Yokota AB, Japan (1985-1988); Superintendent of the Southeast Medical Equipment Repair Center, 81st Medical Group, Keesler AFB MS (1988-1995); Wilford Hall Medical Center, 59th Medical Wing, Lackland AFB TX from January 1995 until his retirement in September 1998. Dan enjoyed a military career of over 30 years. Reincarnated as a contractor, he brings a wealth of knowledge to the DIS Equipment Evaluation Section. He is an Internationally Certified Biomedical Equipment Technician. Dan, his wife

Norma, and their son Jeff reside in Helotes, TX.

# QUESTIONS & ANSWERS

**"Questions & Answers"** is a feature in which we present and answer the questions we most frequently receive from the field. This month we feature a questions about "Unacceptable" products and condensible resin composites. Should you want more information about a particular topic, please contact the individual whose name follows the specific answer in which you are interested. If you have a question about a topic not discussed in this issue, feel free to call DIS at DSN 240-3502.

## 56-05 Purchasing "Unacceptable" Products

**Question:** I understand that Health Services Inspection (HSI) teams are checking to see if we have consulted DIS before purchasing equipment when it costs over $100,000 or if there is a question about its compatibility with existing systems. I also understand we should not have equipment or products in our inventory that DIS has rated as “Unacceptable.” What does “compatible with existing systems” mean and do you have a master list of items rated as “Unacceptable”?

**Answer:** The phrase “compatible with other systems” means that the item does not function solely by itself but requires another piece of equipment or system to function. The dental handpiece is a good example. Depending on your existing dental unit, additional couplers may be required for certain handpieces. If you are changing handpiece brands, it might be advantageous to change the fiberoptic delivery system at the same time. If you are going to maintain two or more different handpiece brands, then your selection of dental unit hoses and fiberoptic systems is limited and critical. Other examples are certain facility-type purchases such as dental suction, compressors, instrument washers, and sterilizers. Although these appear to be stand-alone items, they do have specific space, electric, and plumbing requirements. An inadequate suction system or compressor can have a negative impact on all dental operatories. Consulting with Lt Col Jim Kane or Mr Richard Blankman from our facilities team can prevent many frustrating and expensive mistakes in this area.

A list of the products rated as “Marginal” or “Unacceptable” by DIS in the past 12 years is available from DIS upon request. It should be noted that a "Marginal" rating does not mean a product cannot be purchased, just that you should have good justification for its purchase. It is also important to realize that a product rated as “Unacceptable” in the past may have been significantly improved since the original evaluation and may, in fact, now be "Acceptable."

(Col Leonard)

## 56-06 Condensible Resin Composites

**Question:** I have seen advertisements for "condensible" composites in some dental newsletters and one journal. They sound really good because they can be used as alternatives to amalgam. Are they as good as the ads say they are?

**Answer:** The advertisements certainly make them sound like ideal restorative materials. Currently there are four "condensible" resin composites on the market: SureFil (Dentsply/Caulk), ALERT

(Jeneric/Pentron), Solitaire (Heraeus Kulzer), and Pyramid (Bisco). They were developed within the last year and are sold as alternatives for amalgam in restoring posterior teeth. Amalgam, as most dentists are aware, has come under increasing scrutiny because of its alleged hazardous properties. Although scientific evidence is lacking to prove it is hazardous for patients, environmental concerns are making its disposal a problem. Some wastewater treatment works in the United States have established stringent wastewater limits for silver and mercury disposal that have resulted in some federal dental facilities being cited for noncompliance. Because of these problems, manufacturers have turned their attention to developing and marketing resin composites that, they claim, have several characteristics that make them esthetic amalgam alternatives. First, these "condensible" or "packable" resins can be placed into a preparation and condensed as if they were amalgam. That may be an oversimplification, because they are still resins and handle like resins. But, because they are relatively highly filled with either differing sizes of filler particles (Pyramid) or with fiber (ALERT), porous (Solitaire), or irregularly-shaped (SureFil) filler particles, they resist condensation to an extent are purported to be amalgam-like in their packaging and handling properties. Two of the products, ALERT and SureFil, have the resin packaged in blister packs that differ by spill size. They also come with amalgam carriers that the clinician uses to place them into the preparation. They all can be packed with amalgam condensers and are used with traditional metal matrix bands and wooden wedges. Because they are more viscous and packable than standard resin composites, it is a bit easier to achieve acceptable interproximal contacts with them compared to traditional resin composites. Wear rates are supposedly similar to that of amalgam (about 3.5 microns/year), however, it should be noted that a study presented at a recent dental research meeting found a much higher wear rate for Solitaire (Flessa et al, J Dent Res 1998;77:237). Another important claim that their manufacturers make is that these resin composites can be placed in bulk and light activated because they shrink less than other resins. In fact, Dentsply/Caulk and Jeneric/Pentron claim that their products can be placed in 5-mm thicknesses prior to light activation. If true, this would simplify placement and reduce chair time. However, preliminary work at DIS indicates that 5-mm thicknesses of two of the condensible resin composites (SureFil and Solitaire) are not adequately polymerized by a 40-second light exposure. Although some steps in their placement are like those of amalgam, other aspects are the same as those of traditional resin composites: they come with dentin bonding agents that are used to establish a micromechanical bond between the resin composite and tooth structure and they are finished and polished like other resin composites.

Additional research needs to be performed by independent researchers and clinicians to assess the validity of the claims made for the condensible resin composites. DIS has evaluated Solitaire (DIS 56-15) and will soon begin a laboratory and clinical-user evaluation of SureFil. As with most newly-marketed products, it is wise to either not use them or use them conservatively until more research has been published on their performance. One thing you can be sure about: more of these products will be marketed in the future. DIS will continue to formally evaluate them and obtain additional information so you are informed about how they are performing in the laboratory and at chairside. Specific information about individual condensible composites can be obtained by contacting Jeneric/Pentron at (800) 551-0283 or www.jeneric.com, Heraeus/Kulzer at (800) 450-2377 or www.kulzer.com, Bisco at (800) 247-3368 or www.bisco.com, and Dentsply/Caulk at (800) 532-2855 or www.caulk.com.

(Lt Col Charlton)

# *WHAT'S NEW?*

**"WHAT'S NEW?"** features recently-marketed dental equipment and materials. New and innovative products are marketed each month and DIS is unable to evaluate all of them. This section of the newsletter brings these products to your attention. Because DIS has not had the opportunity to evaluate these products, we cannot confirm manufacturers' claims about them. If you would like additional information about the products or are interested in evaluating them, please contact DIS.


**ProTec CEM™** is a new, self-setting, hybrid resin/glass-ionomer cement from Ivoclar North America, Inc. It is available in two shades (translucent and universal/yellow) and is provided in a powder and liquid form that is hand-mixed at the time of use. Ivoclar recommends ProTec CEM for the cementation of PFM and all-metal restorations as well as endodontic posts. Other brands of hybrid resin/glass-ionomer cements (Fuji Plus, Vitremer, Advance) have been shown to cause fractures of all-ceramic restorations because the cements expand following cementation. Ivoclar maintains that ProTec CEM is different from them in that it exhibits less post-use expansion and, as a result, it is acceptable for luting non-metal restorations such as those made of Targis/Vectris (Ivoclar), In-Ceram (Vident), or Procera (Nobel Biocare). The company claims that ProTec CEM expands minimally because it has a dense polymer network structure and does not absorb water after polymerization. In addition to its dimensional stability, Ivoclar reports that the cement is radiopaque, releases fluoride, and has better physical properties than traditional cements such as zinc phosphate, zinc polycarboxylate, and glass ionomer. A Standard Package includes two bottles of powder (one of each shade), a bottle of liquid, MSDS, and graphics-containing instruction card. It can be purchased for $112.00 (retail) and $49.00 (government) from Ivoclar (800) 533-6825, (716) 691-2285 FAX.

(Lt Col Charlton)

**Clen-Dent** is the only xylitol-containing chewing gum currently available in the United States. This adjunct for caries management with the medical model treatment plan is marketed by Advantage International. Recent evidence seems to indicate that xylitol chewing gum, when chewed prenatally, may reduce otitis media in infants by reducing the mother's oral streptococcus levels. Clen-Dent is available in three flavors (wintermint, spearmint, and fresh fruit) and is packaged in 100-, 600-, or 1300-count containers. One hundred-count containers retail for $9.95. Information concerning government pricing and possible retail or base exchange stocking can be obtained at (203) 226-8442, www.advantageintl.qpg.com, or e-mail at markreynolds@webtv.net.

(Lt Col Roberts)

**Chairside Model In A Minute** is marketed by Roydent Dental Products as a fast-setting polyvinylsiloxane material designed for forming extraoral dies or models for fabricating indirect/direct composite restorations. The material is also said to be suitable for fabricating models for removable


prosthetic appliance repair. Chairside Model In A Minute is advertised as a highly flowable, low-viscosity, auto-mixed material that can be injected directly into alginate impressions. Roydent's instructions recommend that the wash material be injected into the impression within 20 seconds, followed by the heavy-bodied model material. Models may be separated from the impression one minute after placement. Chairside Model In A Minute is said to be able to be disinfected with standard solutions and to posses a three-year shelf life. The Introductory Kit contains one 80-gm cartridge of wash material, one 115-gm cartridge of heavy-body material, six light- and heavy-body mixing tips, six intraoral tips, and an automix cartridge adapter slide. The Introductory Kit is available for $61.85 (retail) and $37.10 (government) by calling Roydent (800) 992-7767, (248) 652-2505, (248) 652-2505 FAX, or www.roydent.com.

(Lt Col Roberts)

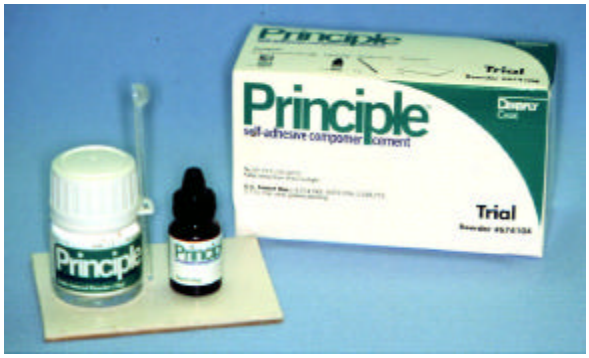

**To Dye For** is a unit-dose red or blue dental disclosing dye marketed by Roydent Dental Products. This propylene glycol-based dye is advertised as indicated for caries disclosing, crack identification, and root canal orifice location. Excess dye is removed after ten-second placement by water rinsing. Stains not removed by mechanical action are said to be easily eliminated with either sodium hypochlorite or hydrogen peroxide. Both colors are available in 25- or 150-count packages of individual, pre-dosed, plastic pipettes. The 25-count packages are available for $20.45 (retail), $12.30 (government); bulk packages for $110.05 (retail) and $66.05 (government). They may be ordered by calling Roydent (800) 992-7767, (248) 652-2505, (248) 652-2505 FAX, or www.roydent.com.

(Lt Col Roberts)


**ToothMedic™** from Americare Health Products is aptly subtitled "The Emergency Tooth Transporter." The product consists of a single 4-inch-long, 5/8-inch-diameter test tube that is used to protect an avulsed tooth until it can be re-implanted by a dentist. The tube contains a solution described in promotional literature as a "biocompatible, pH-balanced, cell culture system" that is purported to preserve living cells and prevent damage to the periodontal ligament for up to 24 hours. The avulsed tooth is simply placed in the tube after opening the twist-off plastic cap and removing a tamper-proof seal. Americare recommends that the patient then proceed immediately to a dentist for evaluation. The company suggests that ToothMedic is an appropriate addition to emergency medical kits in emergency rooms, recreational areas, sports arenas, and automobiles. The product package contains easy-to-read instructions on the back. ToothMedic is available in a case of 24 from the Midwest Medical Supply Company (800) 488-7951 for $204.00 (retail) and $116.40 (government).

(Lt Col Charlton)

**Principle™ Self-adhesive Compomer Cement** is Dentsply Caulk's most recently introduced permanent luting agent. The product is recommended for cementing all-metal crowns, conventional and porcelain-margin PFMs, gold inlays and onlays, and cast/pre-fabricated endodontic posts. Among its purported advantages are a high retention rate, insolubility, consistent fluoride release, and easy handling. Principle is supplied as a powder and liquid that must be hand mixed. Two methods are suggested for cleaning up excess cement (i.e., marginal excess). A self-cure cleanup is done when the cement reaches a gel-like state one minute after placement; the dual-cure cleanup is performed after polymerizing the cement using a 10-second light exposure with a standard chair-side light curing unit. Caulk claims a working time of four minutes on the mixing pad and an intraoral self-cure setting time of three minutes. No treatment of the preparation with an acid conditioner or dentin bonding agent is said to be needed. An Introductory Kit (12-g bottle of powder, 6-g bottle of liquid, powder scoop, mixing pad) can be purchased from Caulk (800) 532-2855 for $70.00 (retail) and $38.50 (government).




(Lt Col Charlton)

**Ariston pHc™** is described by Ivoclar North America, Inc. as a white, light-cured, alkaline glass restorative material used as an amalgam alternative for posterior Class I and II restorations and in the primary dentition. It is further described as an "intelligent" restorative because it releases fluoride, calcium, and hydroxyl ions when intraoral pH drops below 5.5. Instructions recommend that the material be placed using a traditional non-adhesive technique in preparations with undercuts and rounded internal line angles. Ivoclar cautions against using Ariston pHc with traditional dentin bonding agents; instead, the product is supplied with a light-activated liner that contains modified polyacrylic acid, HEMA, and catalysts in a water/alcohol base. According to Ivoclar, Ariston pHc can be placed in a thickness of up to 4 mm although at least two layers should be placed and light-cured when restoring cavities with proximal boxes. The product is supplied in only one shade (universal) and is packaged in Cavifils, capsules that are used with a direct placement gun similar to those used to place resin composites. An Intro Cavifil Package contains 60 Cavifils, one 5-g bottle of Ariston Liner, a dispenser gun, MSDS, and graphics-containing instruction strip. It can be purchased for $190.00 (retail) and $81.00 (government) from Ivoclar (800) 533-6825 or (716) 691-2285 FAX.


(Lt Col Charlton)

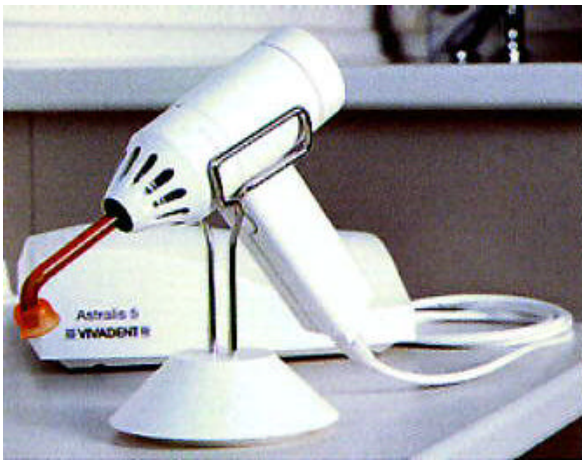
**PQ1™ Single Syringe Bonding System** is Ultradent's fifth-generation (i.e., "one-component"), light-cured, dentin bonding agent. Like the majority of Ultradent's products, PQ1 is supplied in a plastic syringe with special disposable applicator tips. The product is recommended for bonding to enamel, dentin, porcelain, amalgam, noble metals, base metals, and for performing composite repairs. Although it is supplied with a phosphoric acid etchant, it is not provided with a porcelain etchant (hydrofluoric acid), silane solution, or opaquing resin often required when repairing porcelain. Ultradent claims that PQ1 is alcohol based, 40% filled, fluoride releasing, and radiopaque. An Introductory Kit (REF/UP 615) contains two 1.2-cc syringes of 35% phosphoric acid etchant, two 1.2-cc syringes of PQ1, and disposable tips for both syringes. It can be purchased for $70.25 (retail) and $59.71 (government) from Ultradent (800) 793-

5216, (800) 553-4915 FAX.

(Lt Col Charlton)

**PrepQuick™** is a pre-impression surface conditioning agent marketed by Ultradent. The solution is a 2% glycolic acid gel that is applied to a prepared tooth and rinsed off prior to making an elastomeric impression. Ultradent claims that the solution removes the outer portion of the smear layer and reduces surface tension, which helps the impression material more easily wet the tooth. The resulting impression is purported to more accurately capture detail and contain fewer air bubbles. The product is supplied in a plastic syringe and comes with disposable applicator tips. A standard kit (REF/UP 516) contains four 1.2-cc syringes of PrepQuick and disposable syringe applicator tips. It can be purchased for $29.00 (retail) and $24.65 (government) from Ultradent (800) 793-5216, (800) 553-4915 FAX.

(Lt Col Charlton)




The **Astralis™ 5** is Ivoclar Vivadent's new corded visible light curing unit. The unit comes standard with an 8-mm-diameter curing tip. There are four optional curing tips available from Vivadent and the curing unit also will accept all Demetron tips. The light is generated by a 75-watt quartz-halogen bulb with a reported average irradiance of 600 mW/cm$^2$ in the spectral range of 400 to 500 nm. The Astralis™ 5 is equipped with a voltage regulator to ensure even irradiance in the event of power fluctuations. The cord connecting the curing light to the power module is available in either helical or straight design and in a variety of lengths. The cord quickly connects through the use of modular connections similar to those on telephones. The handpiece can be attached to the power module or placed on a separate stand. The Astralis™ 5 is available from Ivoclar Vivadent (800) 533-6825, (716) 691-2285 for $590.00 (retail) and $320.00 (government).

(Col Leonard)

**CosmoPost/IPS Empress Cosmo Ingot®** is advertised by Ivoclar North America as a metal-free root canal post and core build-up system. It consists of a tapered zirconium ceramic post available in two sizes that can be used in direct or indirect techniques. In the direct technique, the root canal post space is prepared with a reamer and root canal bur which are provided with the post. Two sizes of burs are provided that correspond to the two different sizes of CosmoPosts. The Cosmopost, which is sandblasted at the factory, is then luted using a conventional cement (e.g., zinc phosphate cement or glass-ionomer cement) or a dentin bonding agent and self-curing resin cement. Conventional resin composite is then used to form the core directly in the mouth. In the indirect technique, an impression is made of the involved tooth after the CosmoPost has been inserted into the post-space. The laboratory procedure begins when the technician waxes a core to the CosmoPost. The CosmoPost post and attached wax core are sprued, invested, and cast using the IPS Empress technique. The casting material that forms the core is a prefabricated ceramic ingot made of silicon dioxide and zirconium dioxide. The resulting ceramic post and core unit is cemented using a self-curing resin cement or a conventional cement. A permanent ceramic restoration is then fabricated to fit the core

using traditional prosthetic techniques. The primary advertised advantage of this product is that it eliminates unesthetic show-through of a metal post/core in esthetically demanding situations. Other purported benefits include biocompatibility and non-corrosiveness. A CosmoPost Assortment Kit includes three tapered posts of each of two diameter sizes (1.4 mm and 1.7 mm), one 1.4-mm twist drill, one 1.7-mm twist drill, and one #3 Gates Glidden Reamer. The product can be purchased for $179.00 (retail) and $76.00 (government) from Ivoclar (800) 533-6825, (716) 691-2285 FAX.

(Lt Col Charlton)


**Prime & Bond NT** is the newest one-bottle, light-activated, dentin bonding product from Dentsply/Caulk. This acetone-based product differs from Prime & Bond 2.1 in that it contains extremely small filler particles which are purported to impart greater bond strength and lower film thickness to Prime & Bond NT. They are also said to enhance the bonding agent's ability to coat the tooth surface. "NT" stands for Nanofiller Technology which broadly describes the addition of these filler particles. The product is applied for 20 seconds to acid-etched dentin and enamel, air dried for 5 seconds, and light cured for 10 seconds. A Self Cure Activator can be purchased which chemically converts Prime & Bond NT into a dual-cured system. An Economy Package (Item# 634351) which contains both the bonding agent and 34% phosphoric acid etchant can be purchased for $254.30 (retail) and $139.86 (government) from Dentsply/Caulk (800) 532-2855.

(Lt Col Charlton)

**DyractFlow Flowable Compomer Restorative**, from Dentsply/Caulk, is a low-viscosity restorative material packaged in a syringe. It is recommended by the manufacturer for minimally invasive preparations, shallow Class V lesions, and margin repairs; it can also be used as a base/liner under Class I and II compomer and resin composite restorations. An Operatory Kit of DyractFlow (item 685605) contains six 1.5-g syringes (one each of shades A2, A3, A4, B1, C2, and Translucent), Tooth Conditioner Gel, Prime & Bond NT, and accessories. It can be purchased for $89.70 (retail) and $49.39 (government) from Dentsply/Caulk (800) 532-2855.

(Lt Col Charlton)

Dentsply/Caulk recently introduced the **Spectrum 800** curing light. The light's intensity can be manually adjusted between 300 mW/cm$^2$ and 800 mW/cm$^2$ in 50-mW increments. This allows the operator to customize the irradiance for the stepped cure technique. Recent research indicates that stepped curing (i.e., curing at a lower intensity initially followed by curing at a higher intensity) reduces marginal gap formation without adversely affecting the composite's physical properties. Exposure time can be selected in 10-second intervals up to 60 seconds. The unit's light is generated by a 75-watt quartz-halogen bulb and the internal filter restricts light to the spectral range of 400 to 500 nm. The unit has a built-in digital radiometer for measuring the unit's irradiance. It comes standard with an autoclavable 8-mm diameter curing tip; other tips between 3-mm and 13-mm are available separately. The Spectrum 800 is available from Dentsply/Caulk (800) 532-2855 for $813.85 (retail) and $529.00 (government).


(Col Leonard)

**Versalite™** is a microhybrid resin composite marketed by Centrix, Inc. (www.centrixdental.com). Purported to be non-sticky and easy to place, Versalite™ is filled to 75% by weight with barium aluminum borosilicate glass; average filler particle size is approximately 0.7 microns. Centrix claims that restorations made of Versalite™ are highly polishable and extremely esthetic. The product comes in 10


Vita-indexed shades (A1, A2, A3.5, A4, B1, B2, B3, C1, C2, C3) and is packaged in pre-filled syringe tips (ie, capsules) that fit any Centrix dispensing gun. The shade is imprinted on each tip for easy identification. The product's main selling point emphasized by Centrix is that the average Versalite™ tip costs less than most popular resin composite tips. It should be noted that Versalite™ is purchased only as refill packages of tips. In other words, it is not purchased as part of a typical resin composite kit. As a result, a dentin bonding agent would have to be purchased separately. Twenty 0.25-g tips of one shade cost $27.45 (retail) and $24.95 (government). If 6 or more bags of 20 tips are purchased, the government cost is reduced to $21.95 per bag. Versalite™ is available from Centrix (800) 235-5862, (203) 929-6804 FAX.

(Lt Col Charlton)

**VersaBond™** is a new acetone-based one-step bonding agent marketed by Centrix, Inc. The company claims that VersaBond™ is easy to apply (ie, only a single coat is necessary) and bonds strongly (26 MPa) to dentin when used with its resin composite, Versalite™. The bonding agent is supplied in a 4-mL bottle that has a special cap that enables the user to dispense a drop of the liquid by tipping and turning the bottle. A bottle of VersaBond™ costs $60.45 (retail) and $54.95 (government). If 10 or more bottles are purchased, the government cost per bottle is reduced to $48.35. VersaBond™ is available from Centrix (800) 235-5862, (203) 929-6804 FAX, or www.centrixdental.com.

(Lt Col Charlton)

The **Micromachined Matrix Band** is a new matrix band invented and marketed by a dentist. It is designed to address the difficulties in obtaining adequate proximal contacts with posterior resin composites. The band is similar to a #1 universal Tofflemire matrix band (0.0015”) but has two windows of 0.0005”- thick matrix in the usual proximal contact areas. This window of extremely thin matrix is reinforced by the surrounding 0.015” band. In addition, the contact areas are contoured to create a slight proximal convexity. The matrix bands are sold in bulk packs of 100 bands for $90.00 (retail) from Dental Innovations (503) 224-4645.

(Col Leonard)

# FROM THE LITERATURE

Periodically, articles appear in the literature that present clinically useful information or evaluate the performance of a material or piece of equipment. Because DIS believes that this type of research is of value to clinicians, we present a brief description of these articles to make you aware of them. The complete citation is provided so you can obtain the article if you are interested in reading it in its entirety.

*RUBBER DAM USE DURING AMALGAM RESTORATION REMOVAL REDUCES BLOOD AND URINE MERCURY LEVELS*

Berglun A, Molin M. Mercury levels in plasma and urine after removal of all amalgam restorations: the effect of using rubber dams. Dent Mater 1997;13:297-304.

The purpose of this study was to determine the effect of removal of all amalgam restorations on two indicators of mercury exposure: plasma levels (indicative of short-term exposure) and urine levels (indicative of long-term exposure). Eighteen patients had amalgam restorations removed using rubber dam; ten patients had amalgam restorations removed without rubber dam. All other clinical procedures were the same including operator and use of high speed handpiece, water coolant, and high speed evacuation. None of the participants were occupationally exposed to mercury nor were there significant differences in fish consumption. Blood mercury levels were compared preoperatively vs. one day and one year postoperatively; urine mercury levels were compared preoperatively vs. ten days and one year postoperatively. **There were significant increases in one-day blood mercury levels and ten-day urine mercury levels in the non-rubber dam group only.** By one year following amalgam restoration removal, both groups showed significant reductions in both blood and urine mercury levels compared to pre-operative concentrations. The authors noted that “massive” removal of up to 42 surfaces of amalgam at a single treatment session did not elevate peak blood and urine levels to even the mean levels found in moderately occupationally exposed workers.

*AN EFFECTIVE DESENSITIZER FOR CLASS V AMALGAMS*

Schwartz RS, Conn LJ, Haveman CW. Clinical evaluation of two desensitizing agents for use under Class V silver amalgam restorations. J Prosthet Dent 1998;80:269-273.

Although esthetic materials are gaining in popularity, amalgam remains a commonly-used posterior restorative material. One of its shortcomings, however, is postoperative thermal sensitivity which is particularly noted with alloys consisting of spherical particles (e.g., Tytin, Megalloy, Valiant). This study compared the postoperative sensitivity of Class V caries restored with amalgam and Copalite (HJ Bosworth) or DentinBloc (Colgate Oral Pharmaceuticals). The research was performed by placing one pair of Class V Tytin (Kerr Corporation) amalgam restorations in each of 16 patients after coating the preparations with either Copalite or DentinBloc. Ice was directly applied to the restorations at five time periods (24 hours, 1, 2, 4, and 16 weeks after placement) and the amount of time required by the patient to perceive pain was measured. Results indicated that sensitivity was significantly less at 3 of the 5 time periods (24 hours, 2 weeks, and 4 weeks) for the DentinBloc-treated teeth than for the Copalite-treated teeth. At 1 and 16 weeks, there was a trend for the DentinBloc teeth to be less sensitive than the Copalite teeth, but the difference wasn't significant. DentinBloc is purported to work by causing the formation of a mineral precipitate that occludes dentin tubules and prevents tubular fluid flow which, according to the hydrodynamic theory, results in pain. **The authors concluded that DentinBloc was more effective than Copalite in reducing postoperative sensitivity of amalgam restorations.**

*AEROSOL/SPATTER DURING DENTAL PROCEDURES*

Harrel SK, Barnes JB, Rivera-Hidalgo F. Aerosol and spatter contamination from the operative site during ultrasonic scaling. J Am Dent Assoc 1998:129:1241-1249.

Dental procedures utilizing dental handpieces, air-water syringes, air-polishing units, and ultrasonic scalers produce significant quantities of contaminated aerosol and spatter. Aerosol/ spatter-

producing dental procedures contaminated with saliva, blood, and microorganisms are a health risk for patients and dental personnel. The Occupational Safety and Health Administration (OSHA) is currently evaluating indoor air quality standards that may affect the dental community. This in-vitro study quantified the contamination produced by ultrasonic scalers without coolant water to ensure that all aerosol/spatter resulted from the operative site and not from coolant water. This was compared to production from hand-held curette scaling. **All tested ultrasonic scalers produced significantly more aerosol and spatter regardless of the type of scaler, the power level or the insert, versus hand-held scaling.** The American Dental Association (ADA) recommends the use of a high-volume evacuator whenever ultrasonic scalers are used to minimize health hazards to patients and dental healthcare workers. This study supports that recommendation.

*CROSS CONTAMINATION IN THE DENTAL OPERATORY*

Hackney RW, Crawford JJ, Tulis JJ. Using a biological indicator to detect potential sources for cross-contamination in the dental operatory. J Am Dent Assoc 1998;129:1567-1577.

The authors studied contamination using surveillance monitoring methodology to evaluate the validity of infection control procedures. *Streptococcus viridans* was selected as the biological indicator of oral contamination because it is a common inhabitant of the oral cavity, has the ability to survive extraorally, is present in low numbers in a non-dental environment, and is easy to culture. This study showed that *Streptococcus viridans*, which is abundant in human saliva, was detected on unprotected disinfected surfaces. This indicates the inadequacy of current surface disinfection practices. **These findings validate and reinforce the current concepts of infection control including: barrier protection, not touching unprotected items and surfaces with contaminated gloves, and sterilizing or disinfecting all other items and equipment handled in the treatment field that cannot be protected in another fashion.**

# DIS IN PRINT

This feature of the newsletter appears periodically to highlight recent publications by the DIS staff. A brief description of the work follows the title. If you are interested in reading the entire article, please call the individual whose name is highlighted for a reprint.

Repairability of three resin-modified glass-ionomer restorative materials. Shaffer RA, **Charlton DG**, Hermesch CB. Oper Dent 1998;23:168-172.

Resin-modified glass-ionomer cements (RMGICs) have become popular as restorative materials, particularly for Class V lesions. Sometimes, because of voids or undercontouring, these restoratives need to be repaired by adding new material to the restoration. This study evaluated the laboratory repair bond strength of three such materials (Fuji II LC [GC America], Vitremer [3M], Photac-Fil [ESPE America]) which were repaired at two different time periods. For each material, one group was repaired 5 minutes after the original restoration was placed, and the second group was repaired one week after the restoration was placed. Results indicated that Vitremer had a significantly greater repair bond strength at both times. Unlike Fuji II LC and Photac-Fil, Vitremer's bond strength when repaired after one week did not significantly differ from its bond strength when repaired after 5 minutes. For Fuji II LC and Photac-Fil, repairing the material after one week produced a weaker bond than when repaired after 5 minutes. **The authors concluded that the time at which a repair is made significantly affects the repair bond strength for two of the three RMGICs. Vitremer can be repaired as late as one week after placement without a reduction in the strength with which the new material bonds to the old material.**

# GENERAL DENTISTRY

## 56-07 Lojic+ Amalgam (Project 98-03)

Lojic+ is manufactured by Southern Dental Industries (SDI) and is a high-copper, platinum-modified, non-gamma 2, single-composition spherical alloy. The alloy composition is 60.1 percent silver, 28.05 percent tin, 11.8 percent copper, and 0.05 percent platinum. SDI claims the platinum addition increases Lojic+'s tensile and compressive strength by five percent. Lojic+ requires 42.2 percent mercury for optimum amalgamation. Lojic+ is said to possess positive condensation characteristics for establishing interproximal contacts. Increased resistance to condensation is reported to be related to both rough surface texture of the spherical particles as well as a wide range of spherical particle size (2 to 56 µm). SDI offers Lojic+ with different delivery designs. It is available in alloy powder-mercury, alloy tablet-mercury, standard pre-dosed capsules, and a unique direct placement capsule delivery system. The direct placement amalgam capsule is an innovative design that allows the direct injection of amalgam into the preparation, thereby eliminating amalgam carrier use. This system, according to SDI, features both a substantial reduction in procedure time and reduced mercury vapor exposure during amalgam placement. SDI states that the direct placement capsules can be used with most amalgamators, although the triturator forks must be changed with a kit that SDI will provide. Standard capsules are available in one-, two-, three-, and five-spill sizes while the direct placement capsules are available in one-, two-, and three-spill. All Lojic+ capsule designs are hand activated and they do not require a separate activation device.

Lojic+ is available in various setting times. Standard capsules are available in fast set (seven minutes), regular set (nine minutes), and slow set (ten minutes). According to SDI, Lojic+ fast set is equivalent to Tytin's setting time. The direct placement amalgam capsules are only available in fast set (seven minutes).

**Manufacturer:**
Southern Dental Industries, Inc.
246 First Street, Suite 204
San Francisco, CA 94105
(800) 228-5166
(415) 975-8060
(415) 975-8065 FAX


**Suggested Retail Cost:** (3-spill size)
$53.50 50-capsule
$481.55 500-capsule bulk

**Government Cost:** (3-spill size)
$27.29 50-capsule
$245.68 500-capsule bulk

**ADVANTAGES:**
+ Favorable physical properties as compared to other available spherical alloys.
+ Straightforward and efficient packaging design.
+ Instructions are legible and complete.
+ Easy to use with existing clinical techniques.
+ Excellent condensation properties.
+ Easier to establish proximal contacts than with other single-composition spherical alloys.
+ Capsules are easy to activate and open.

+ Published sources report favorable microleakage compared to other spherical alloys.
+ Published sources report three-year clinical performance comparable to other alloys.
+ No reports of post-operative sensitivity in this evaluation.
+ Available in three setting times (fast, regular, and slow set).
+ Available in four spill sizes (1, 2, 3, and 5).
+ Introductory packs available which provide a mixture of all spill sizes.
+ 50-capsule packages are 37 percent less expensive than Tytin.
+ 500-capsule bulk packages are less expensive than Tytin.

**DISADVANTAGES:**
- No trituration setting times available for Pro-Mix amalgamator.
- Published sources report Lojic+ may tarnish slightly more than other amalgam alloys.

**SUMMARY AND CONCLUSIONS:**
Lojic+ is a platinum-modified, single-composition spherical alloy marketed by Southern Dental Industries that has been recently introduced in the United States. Clinical users in this evaluation overwhelmingly appreciated Lojic+'s clinical handling features. Evaluators reported that the capsules were easy to activate and open. The alloy demonstrated a dispersed-phase type of resistance to condensation that allowed establishment of contours and interproximal contacts. The amalgam also demonstrated good carving characteristics. Lojic+ has been shown to have statistically less microleakage than Tytin by outside researchers, however DIS found no significant difference between the two brands. The amalgam has been evaluated clinically by outside researchers and shown to be comparable to other alloys. Lojic+ is available in three setting times and four spill sizes. All ten evaluators rated Lojic+ as above average and nine of ten recommended it for general use in their clinics. Lojic+ is less expensive than Tytin. **Lojic+** is rated **Acceptable** for use by the federal dental services. Lojic+ is recommended for clinicians who desire a spherical amalgam alloy with clinical handling characteristics of a dispersed phase amalgam.

(Lt Col Roberts)

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## 56-08 GS 80 Amalgam (Project 98-09)


GS 80 is manufactured by Southern Dental Industries (SDI) as a high-copper, non-gamma 2, admixed amalgam alloy. The alloy composition is 40.0 percent silver, 31.3 percent tin, and 28.7 percent copper. GS 80 requires 47.9 percent mercury for optimum amalgamation. SDI claims that GS 80 possesses excellent marginal sealing capability due to its approximately two micron per centimeter 24-hour dimensional expansion upon setting. SDI purports this produces zero postoperative sensitivity. The formulation of GS 80 is said to provide high initial and final compressive strengths to give protection from early fracture. The product's 60-minute compressive and tensile strength are reported by SDI to be higher than those of Dispersalloy (Dentsply/Caulk). Physical properties of GS 80 are reported to include a 60-minute compressive strength of 225 MPa (38,000 psi) which is stronger than the value Dentsply reports for Dispersalloy (152 MPa). Also, SDI reports GS 80's 60-minute diametral tensile strength to be 22 MPa (4000 psi) as compared to Dispersalloy's 18 MPa.

SDI offers GS 80 in three different delivery designs: alloy powder-mercury, alloy tablet-mercury, and standard pre-dosed capsules. Capsules are available in one-, two-, three-, and five-spill sizes. All GS 80 capsules are hand activated, not requiring a separate activation device. GS 80 is available in fast set (nine minutes), regular set (ten minutes), and slow set (14 minutes).

**Manufacturer:**
Southern Dental Industries, Inc.
246 First Street, Suite 204
San Francisco, CA 94105
(800) 228-5166
(415) 975-8060
(415) 975-8065 FAX

**Suggested Retail Price:** (3-spill)
$53.50 50-capsule pack
$481.55 500-capsule bulk

**Government Price:** (3-spill)
$27.29 50-capsule pack
$245.68 500-capsule bulk

**ADVANTAGES:**
+ Favorable physical properties as compared to other available dispersed phase alloys.
+ Condensation properties comparable to other dispersed phase alloys.
+ Easy to use with existing clinical techniques.
+ Straightforward and efficient packaging design.
+ Instructions are legible and complete.
+ Capsules are easy to activate and open.
+ Published sources report three-year clinical performance comparable to other alloys.
+ No reports of post-operative sensitivity in this evaluation.
+ Available in three setting times (fast, regular, and slow set).
+ Available in four spill sizes (1, 2, 3, and 5).
+ Introductory packs available which provide a mixture of all spill sizes.
+ 50-capsule packages are less expensive than other alloys.
+ 500-capsule bulk package price is comparable to other alloys.

**DISADVANTAGES:**
- No trituration setting times available for Pro-Mix amalgamator.
- Capsules difficult place in VariMix III amalgamator.
- Some users may find this amalgam to be grainy.

**SUMMARY AND CONCLUSIONS:**
GS 80 is a dispersed phase amalgam alloy marketed by Southern Dental Industries that has been recently introduced in the United States. Clinical users in this evaluation appreciated GS 80's clinical handling features and reported that the capsules were easy to activate and open. The alloy demonstrated resistance to condensation that enabled users to establish contours and interproximal contacts that were comparable to those of other dispersed phase alloys. The amalgam also demonstrated good carving characteristics. GS 80 demonstrated microleakage comparable to other alloys. This product has been evaluated clinically by outside researchers and shown to be comparable to alloys of similar type. GS 80 is available in three setting times and four spill sizes. Eighty-three percent of the evaluators rated GS 80 as above average and recommended it for general use in their clinics. **GS 80** is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

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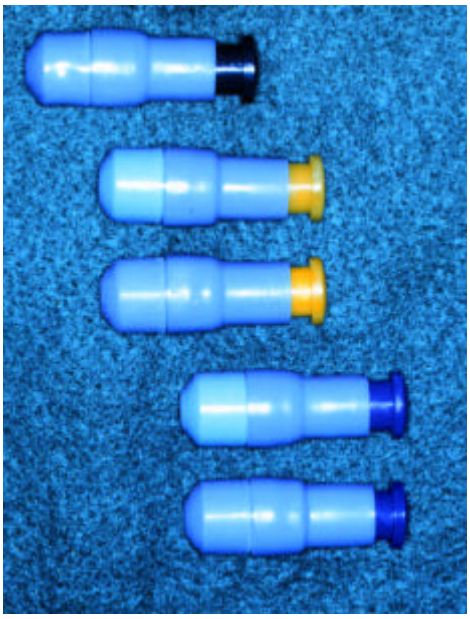
## 56-09 Permite C Amalgam (Project 98-04)

Permite C is manufactured by Southern Dental Industries (SDI) as a high-copper, non-gamma 2, admixed alloy. The alloy composition is 56.0 percent silver, 27.9 percent tin, 15.4 percent copper, 0.5 percent indium, and 0.2 percent zinc. The indium content should not be confused with alloys such as

Indisperse (Indisperse Distributing Company) that contain indium consisting of five percent or greater. Permite C requires 47.9 percent mercury for optimum amalgamation. SDI claims that Permite C possesses excellent marginal sealing capability which results in zero postoperative sensitivity. The formulation of Permite C is purported to provide high initial and final compressive strengths to give protection from early fracture. Physical properties of Permite C are reported by the manufacturer to include a 60 minute compressive strength of 260 MPa (38,000 psi) which is stronger than Caulk/Dentsply's claim for Dispersalloy (152 MPa). Also, SDI reports Permite C's 60 minute diametral tensile strength to be 28 MPa (4000 psi) as compared to Dispersalloy (18 MPa). Permite C is reported to have a positive four micron/cm 24-hour dimension change as compared to Dispersalloy's negative five micron change.

SDI offers Permite C with different delivery designs: alloy powder-mercury, alloy tablet-mercury, standard pre-dosed capsules, and a unique direct placement capsule delivery system. The direct placement amalgam capsule is an innovative design that allows the direct injection of amalgam into the preparation, thereby eliminating amalgam carrier use. This system, according to SDI, features both a substantial reduction in procedure time and reduced mercury vapor exposure during amalgam placement. Information from SDI reveals that the direct placement capsules cannot be used with all amalgamators. The evaluation of Permite C direct placement capsules with an SDI amalgamator will be completed in the future. Standard capsules are available in one-, two-, three-, and five-spill sizes. All Permite C capsule designs are hand activated; they do not require a separate activation device. Permite C is available in varied setting times. Standard capsules are available in fast set (eight minutes), regular set (nine minutes), slow set (ten minutes), and extra carving time (12 minutes).



**Manufacturer:**
Southern Dental Industries, Inc.
246 First Street, Suite 204
San Francisco, CA 94105
(800) 228-5166
(415) 975-8060
(415) 975-8065 FAX

**Suggested Retail Price:** (3-spill)
$53.50 50-capsule pack
$481.55 500-capsule bulk

**Government Cost:** (3-spill)
$27.29 50-capsule pack
$245.68 500-capsule bulk

**ADVANTAGES:**
+ Favorable physical properties as compared to other available dispersed phase alloys.
+ Straightforward and efficient packaging design.
+ Instructions are legible and complete.
+ Easy to use with existing clinical techniques.
+ Condensation properties comparable to other dispersed phase alloys.
+ Capsules are easy to activate and open.
+ Published sources report three-year clinical performance comparable to other alloys.
+ Published sources report significantly less microleakage than other alloys.
+ No reports of post-operative sensitivity in this evaluation.
+ Available in three setting times (fast, regular, and slow set).
+ Available in four spill sizes (1, 2, 3, and 5).
+ Introductory packs are available which provide an assortment of all spill sizes.
+ 50-capsule packages are less expensive than other alloys.
+ 500-capsule bulk package price is comparable to that of other alloys.

**DISADVANTAGES:**
- May display grainy texture during carving.
- Capsules difficult to place in Varimix III amalgamator.

**SUMMARY AND CONCLUSIONS:**
Permite C is a dispersed phase amalgam alloy marketed by Southern Dental Industries that has been recently introduced in the United States. Clinical users in this evaluation appreciated Permite C's clinical handling features. Evaluators reported that the capsules were easy to activate and open. The alloy demonstrated clinical condensation allowing establishment of contours and interproximal contacts comparable to other dispersed phase alloys. The amalgam also demonstrated good carving characteristics. Published sources indicate that Permite C demonstrates less microleakage than other alloys, however no difference was found during the DIS evaluation. Permite C has been evaluated clinically by outside researchers and shown to be comparable to other alloys. Permite C is available in three setting times and four spill sizes. Sixty percent of the evaluators rated Permite C as above average and fifty percent recommended it for general use in their clinics. **Permite C** is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

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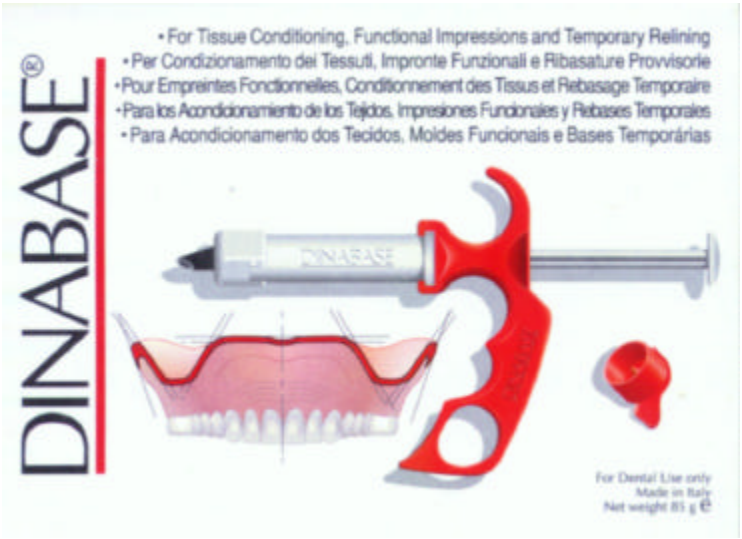
## 56-10 Dinabase (Project 98-14)

Dinabase is a single-component, no-mix, thermoplastic prosthodontic relining material developed by Sultan Chemists, Inc. The product is marketed for long-term tissue conditioning, direct temporary relining, and functional impressions.




Sultan states that Dinabase is a soft, hydrophobic material that is non-toxic, monomer-free, and non-heat generating. It is said to retain its plasticity and permit tissue conditioning for up to 30 days. Dinabase is purported to adhere to acrylic resin and to not require intermediary monomers or bonding agents. Also, the material is advertised as self-adhesive, so additional layers can be added. However, Dinabase is purported to not stick to gloves or instruments. The material is pre-packaged in direct dispenser syringes. To use, a Dinabase cartridge is warmed to 45°C (113°F) for up to two minutes in a water bath. The cartridge is then placed into the dispensing syringe and expressed into the prosthesis. Instructions say that Dinabase may be finger-molded before intraoral placement. Working viscosity is said to be altered by varying the water bath temperature. The Dinabase Introductory Kit includes 10 cartridges and one dispenser syringe.

**Manufacturer:**
Sultan Chemists, Inc.
85 West Forest Avenue
Englewood, NJ 07631
(800) 637-8582
(201) 871-1232
(201) 871-0321 FAX
www.sultanintl.com

**Suggested Retail Price:**
$99.00 Dinabase Introductory Kit (contains 10 Dinabase cartridges and an application syringe)

$100.00 Dinabase Refill Cartridges (10)

**Government Price:**
Individual kits of Dinabase must be ordered from dental product supply dealers. Only bulk amounts (cases of 12) can be ordered at a government price from Sultan, Inc.

$864.00 Dinabase Introductory Kit (same contents as above)

$720.00 Dinabase Refill Cartridges (10)

**ADVANTAGES:**
+ Manufacturer's information is readable with an adequate amount of detail.
+ Good packaging configuration and dispensing system.
+ Adheres to prosthesis, yet is easy to remove.
+ Maintains flexibility.
+ Adheres well to previously placed material.
+ Material is tolerated well by patients.
+ Can be utilized for functional impressions.

**DISADVANTAGES:**
- Material exhibits heavy viscosity and lack of flow.
- Does not function adequately for tissue conditioning due to heavy body of material.
- Considerably more expensive than other chairside soft relining products.

**SUMMARY AND CONCLUSIONS:**
Dinabase is a single-component, thermoplastic soft denture reline material marketed by Sultan Chemists, Inc. Evaluators found the manufacturer's instructions readable with adequate detail. The packaging configuration was logically arranged and the dispensing system is easy to use. Dinabase was found to adequately adhere to prostheses, maintain its flexibility, be easily removed, and not cause patient irritation. Dinabase's major drawback is that it was judged to be very viscous and to lack adequate flow. None of the prosthodontists who participated in the evaluation would recommend its purchase for general use in their respective clinics. Dinabase is considerably more expensive than currently marketed soft reline materials. **Dinabase** is rated **Marginal** for use by the federal dental services.

(Lt Col Roberts)

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## 56-11 Hi Dense TC (Project 98-12)

Hi Dense TC is Shofu, Inc.'s most recent auto-cured glass-ionomer restorative material. Hi Dense TC is a member of the newest glass-ionomer class that is described as "condensible" or "viscous." Although not a cermet glass-ionomer restorative material, Hi Dense TC contains a metal alloy of silver, tin, and copper (18 percent by weight) with additional titanium oxide (four percent by weight). Hi Dense TC has a tooth-like yellowish hue due to combined red and yellow iron oxide dye that attempts to mask the metal fillers. Shofu claims that Hi Dense TC has twice the wear resistance of silver-reinforced glass ionomers with wear resistance comparable to that of some posterior composites.

situations. Evaluators reported that this product exhibited poor overall esthetics. Clinical evaluators experienced difficulty adapting Hi Dense TC into their established clinical techniques and all reported that this product offered no advantages over materials already in use. **Hi Dense TC** is rated **Marginal** for use by the federal dental services.

(Lt Col Roberts)

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## 56-12 Dental Clinic Health and Safety Briefing (Project 98-31)

A dental clinic health and safety briefing has been produced by the DIS staff and is available from the DIS web site under "What's Hot." This 47-slide briefing may be downloaded in either Microsoft PowerPoint 4.0 or 7.0 versions. It is designed to help fulfill yearly training requirements and may be adapted to meet local requirements. Please be aware that formatting changes may occur between different PowerPoint versions and that slight editing may be required after download. This briefing joins the Radiation Safety and Infection Control briefings already available on the DIS web site.

(Lt Col Roberts)

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## 56-13 Synopsis of Dental Sealants (Project 97-37)

Dental sealants are a vital component of caries prevention. A synopsis containing information from ten manufacturers (Attachment 1) was compiled by DIS to assist clinicians and logistics personnel in their search for sealant materials that meet their needs. There are two basic types of sealants: filled and unfilled. Filled sealants should be more resistant to wear and are preferable. Eight of the ten products listed in the synopsis were advertised as filled sealants. Only Teethmate F1 and Light Cure White Sealant are unfilled. Instructions for use are included with each of the products. All of the sealants in the synopsis were listed as light-cure materials, however, two of the manufacturers stated that they also have kits available that utilize self-cure materials (listed in the comments section of the synopsis). Although the prices are listed for convenience, the products are not directly comparable by price. Dentsply Ash sells Delton Plus Pit & Fissure Sealant at a bulk rate only, so the price listed is considerably higher. Some kits feature all the items needed to complete a sealant, while others provide just the sealant material. Major purchasing considerations should be based on whether the product contains fluoride, presence of filler material, completeness of the kit, and the overall ease of application.

(TSgt Springstead)

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## 56-14 Palodent Sectional Matrix System (Project 98-24)

The Palodent Sectional Matrix System is designed to be used for the placement of posterior resin composite restorations. A number of problems have been associated with using resin composite for posterior restorations, including staining, marginal ditching, post-operative sensitivity, increased wear compared to metallic restorations, and difficulties in obtaining adequate interproximal contacts. In an effort to overcome this latter problem, Darway, Inc. has introduced the Palodent Sectional Matrix System. This system consists of one size of contoured sectional matrix bands and a “BiTine” ring. The purpose of the BiTine ring is two-fold: 1) to apply an interproximal wedging force to enhance contact

formation and 2) to aid in the proximal contouring of the restoration. The procedure for using the Palodent Sectional Matrix System for a Class II resin composite restoration is the following: apply the BiTine ring interproximally between the tooth to be prepared and the adjacent tooth pre-operatively for initial separation; after completion of the preparation the BiTine ring is removed; the sectional matrix and wedge are applied; the matrix is burnished against the adjacent tooth; compound is added to the BiTine ring tines and replaced; and the resin composite restoration is placed. The Introductory Kit contains four BiTine rings, sectional matrices, and a VHS instructional video.

**Manufacturer:**
Darway, Inc.
20 North San Mateo Drive, Suite 10
San Mateo, CA 94401
(650) 548-9261
(650) 548-9262 FAX

**Suggested Retail Price:**
$46.95 4 BiTine rings, sectional matrices, instructional video

**Government Price:**
Same as above

**ADVANTAGES:**
+ Well-organized packaging.
+ Excellent instructional video that gives detailed instructions on product use.
+ Provides pre-placement wedging as well as matrix placement and contouring.
+ Judged by evaluators to provide adequate wedging to ensure good interproximal contact in posterior resin composite restorations.
+ Judged by evaluators to provide better proximal contour for posterior composite restorations than traditional matrices.
+ Easier placement for single proximal surface restoration than circumferential band.

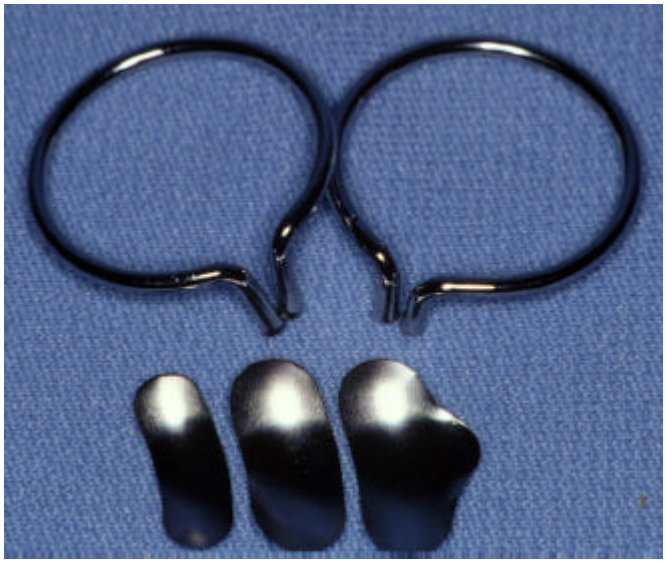
**DISADVANTAGES:**
- BiTine ring is sometimes awkward to place with rubber dam forceps.
- BiTine ring not stable in all clinical situations and may require additional compound stabilization.
- BiTine ring may be difficult to place if preparation has large facial or lingual extensions.
- BiTine ring difficult to place on either side of wedge; can only be placed occlusal to wedge.
- Better restoration contours may not decrease finishing time because of “too tight” contacts.

**SUMMARY AND CONCLUSIONS:**
Palodent is a unique sectional matrix system specifically aimed at aiding the clinician in placing posterior resin composite restorations. It provides both wedging and matrix contouring in a single system. The Introductory Kit comes with an excellent instructional video. Evaluators felt that adequate restoration contours and contacts were obtained. If anything, some evaluators felt that contacts obtained were actually too tight and required additional finishing time to reduce the contacts to the appropriate level. Evaluators judged that the BiTine ring can be awkward to place and is not stable in all clinical situations. Overall, the evaluators were satisfied with the system as a means for placing posterior resin composite restorations, and noted that it provided some advantages over traditional (e.g., Tofflemire) matrices. The **Palodent Sectional Matrix System** is rated **Acceptable** for use by the federal dental services.

(Col Hilton)

## 56-15 Composi-Tight Sectional Matrix System (Project 98-22)

The Composi-Tight Sectional Matrix System, similar to the Palodent Sectional Matrix System, is designed to be used for the placement of posterior resin composite restorations. A number of problems have been associated with using resin composite for posterior restorations, including staining, marginal ditching, post operative sensitivity, increased wear compared to metallic restorations, and difficulties in obtaining adequate interproximal contacts. In an effort to overcome this latter problem, Garrison Dental Solutions has introduced the Composi-Tight Sectional Matrix System. This system consists of three sizes of contoured sectional matrix bands as well as four standard and three long-tine G-rings. The purpose of the G-ring is two-fold: 1) to apply an interproximal wedging force to enhance contact formation and 2) to aid in the proximal contouring of the restoration. The procedure for using the Composi-Tight Sectional Matrix system for a Class II resin composite restoration is slightly different from the Palodent system. The G-ring, unlike the BiTine ring, is not applied interproximally pre-operatively for initial separation, but rather standard wooden wedges are recommended for pre-wedging. After completion of the preparation the appropriate-sized sectional matrix is selected, placed, and the wooden wedge is reapplied. The G-ring is applied with rubber dam forceps over the band ring interproximally between the tooth to be prepared and the adjacent tooth. If the preparation has large facial and/or lingual extensions, the narrow tines of the G-ring allow it to be placed opposite the wooden wedge between the wedge and the adjacent tooth. The resin composite restoration is then placed in the usual manner.



**Manufacturer:**
Garrison Dental Solutions
110 DeWitt Lane
Spring Lake, MI 49456
(888) 437-0032
(616) 842-2244
(616) 842-2430 FAX

**Suggested Retail Price:**
$139.00 Complete System Kit
-4 Standard G-Rings
-3 Long tine G-Rings
-100 standard bands
-100 small bands
-25 large bands
-instructions

**Government Price:**
Price and kit contents same as above

**ADVANTAGES:**
+ Well-organized packaging with good instructions.
+ Provides three contoured matrix sizes and two G-ring tine lengths.
+ Provides wedging as well as matrix placement and contouring.
+ More stable than Palodent; no evaluators noted a need for additional compound stabilization.
+ Judged by evaluators to provide adequate wedging to ensure good proximal contact in posterior composite restorations.
+ Judged by evaluators to provide better proximal contour for posterior composite than traditional matrix.
+ Easier placement for single proximal surface restoration than circumferential band.
+ 100% of evaluators would buy for their clinic.

**DISADVANTAGES:**
- G-ring is less stable if preparation has large facial or lingual extensions.
- More technique sensitive and time consuming than Tofflemire, particularly with MOD restorations.
- Produces contacts that are "too tight" in some restorations.

**SUMMARY AND CONCLUSIONS:**
Composi-Tight, similar to Palodent, is a unique sectional matrix system specifically aimed at aiding the clinician in placing posterior resin composite restorations. It provides both wedging and matrix contouring in a single system. The Complete System Kit comes with seven G-rings in two tine lengths and 225 contoured bands in three different sizes. Since the evaluation of this system was accomplished simultaneously by the same clinicians that evaluated the Palodent system, a "side-by-side" comparison was possible. Similar to the Palodent system, evaluators felt that adequate restoration contours and contacts were produced and some felt that contacts obtained were actually too tight and required additional finishing time to reduce the contacts to the appropriate level. Evaluators judged that the G-ring was easier to place and was more stable than the BiTine ring in the Palodent system. Overall, the evaluators were extremely satisfied with the system as a means for placing posterior resin composite restorations, with 91% of the evaluators rating the Composi-Tight system as "Excellent." Furthermore, 100% of the evaluators indicated they would purchase this system for their own clinics. The **Composi-Tight Sectional Matrix System** is rated **Recommended** for use by the federal dental services.

(Col Hilton)

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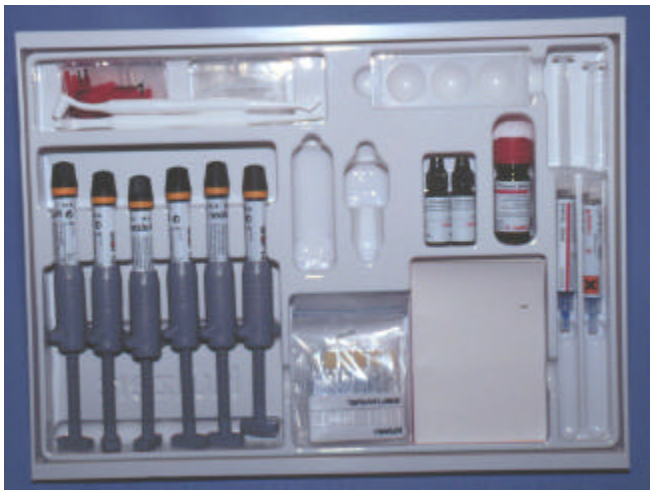
## 56-16 Solitaire® (Project 98-23)

Solitaire® is a visible-light cured, highly-filled resin composite (66% wt, 90% vol) developed to be used for posterior restorations. A number of problems have been associated with using resin composite for posterior restorations, including staining, marginal ditching, post operative sensitivity, increased wear compared to metallic restorations, and difficulties in obtaining adequate interproximal contacts. In an effort to overcome these problems, particularly the latter two, Heraeus Kulzer has introduced Solitaire®. Solitaire® is described by the manufacturer as a polyglas® posterior resin. It contains a proprietary porous filler particle (2 to 20 µm diameter) which purportedly allows the resin matrix to penetrate and interlock into the particle. The rough surface (described as "poly-globular" by the manufacturer) of the particle allows for interparticle interlocking which provides resistance to slumping and condensability characteristics similar to those of amalgam. In addition, the highly-filled nature of this resin composite ostensibly enhances both its handling and wear characteristics. Heraeus Kulzer claims that Solitaire® releases fluoride.

To use the product, normal posterior composite preparation, wedging, and matrix application procedures

are followed. After application of the Solid Bond dentin bonding system, Solitaire® is placed, condensed, and light cured in two-millimeter increments. The company has recently reaffirmed its recommendation for the two-millimeter curing depth, however it has also said that if the dentist uses a curing light with an irradiance of at least 1050 mW/cm$^2$, greater depth of cure will be achieved. The purported depth of cure will vary depending on the shade, but ranges from a low of 3.7 mm (shade A30) to a high of 6.2 mm (incisal shade). Interestingly, the company's caution against using increments greater than two millimeters is not because of concerns regarding inadequate cure but rather because of stresses on enamel walls that may occur during bulk curing. After composite placement and curing, normal finishing and polishing procedures are utilized.



**Manufacturer:**
Heraeus Kulzer, Inc.
4315 S. Lafayette Blvd
South Bend, IN 46614
(800) 343-5336
(219) 291-0661
(800) 522-1545 FAX

**Suggested Retail Price:**

$391.00 Solitaire® Assortment Kit
-six 3-g syringes (one each of shades A10,20,30; B20,30; incisal)
-two 2.5-mL syringes of Esticid etchant
-one 4-mL bottle of Solid Bond P (primer)
-two 2-mL bottles of Solid Bond S (sealant)
-brush handle, disposable brushes & tips

$325.15 Solitaire® PLT (Pre-Loaded Tips) Assortment Kit
-thirty-six 0.25-g pre-loaded tips (six each of shades A10,20,30; B20,30; incisal)
-two 2.5-mL syringes of Esticid etchant
-one 4-mL bottle of Solid Bond P (primer)
-two 2-mL bottles of Solid Bond S (sealant)
-brush handle, disposable brushes & tips
-Centrix Nu-Gun

$64.35 3-g syringe refill/twelve 0.25-g refill pre-loaded tips

**Government Price:**

$220.90 Solitaire® Assortment Kit (contents as listed above)

$182.83 Solitaire® PLT Assortment Kit (contents as listed above)

$36.30 3-g syringe refill/twelve 0.25-g refill pre-loaded tips

**ADVANTAGES:**

+ Complete, well-organized packaging.
+ Contains complete dentin bonding agent system.
+ Contains well-illustrated, laminated, graphics card.
+ Judged by some evaluators to be less adherent to instruments than other composites.
+ Judged by some evaluators to be more condensible than some composites.
+ Judged by some evaluators to resist slumping following placement.
+ Purports fluoride release.

**DISADVANTAGES:**
- Material Safety Data Sheet (MSDS) must be requested separately.
- Low surface hardness.
- Less radiopaque than enamel; does not meet manufacturer's claim.
- Inadequate cure in bulk (e.g. 5 mm or greater with shades A10, A20).
- Very high clinical wear reported.
- Most evaluators felt claim of "amalgam-like condensibility" was not warranted.
- Judged by some evaluators to be less viscous than other composites.
- More expensive than many other resin composites.

**SUMMARY AND CONCLUSIONS:**
Solitaire® comes in a well-organized package that includes a nicely illustrated, laminated, graphics card that evaluators thought offered good-to-excellent readability, technique description, and amount of detail. The Solitaire® Assortment kit is also very complete and includes a dentin bonding system. Evaluators thought the six shades in the kit offered appropriate esthetics, although some added the proviso that the esthetics would not be adequate for anterior restorations. In addition, most found Solitaire® to be less adherent to instruments during placement than other resin composites. While most users thought that Solitaire® was more viscous than other composites they had used, 36% found that it was no more so, or even less viscous than other materials they were currently using. Evaluators were overwhelmingly (91%) in agreement that Solitaire® retained its shape after being placed, which was particularly useful in placing and maintaining occlusal anatomy in the final composite increment prior to light curing. Laboratory results showed that Solitaire® had low surface hardness; in fact it is one of the least hard resin-containing restorative materials that DIS has tested. This may help to explain in part one clinical trial which has reported very high wear in just a six-month period (Flessa et al, J Dent Res 1998;77:237, abstract #1051). Radiopacity of Solitaire® is also a concern, in that DIS testing revealed it to be significantly less radiopaque than enamel, a criterion considered important in aiding in the diagnosis of recurrent caries. In addition, the radiopacity of Solitaire® was found to be 100% the equivalent thickness of aluminum. This is considerably below the company's claim of 150%. Another concern is that while the company recommends placing and curing Solitaire® in two-millimeter increments, it also states that practitioners can use bulk placement and curing if so desired. DIS testing reveals inadequate cure at the bottom of the company's recommended thickness for bulk-cured specimens. Evaluators overwhelmingly considered the company's claim of "amalgam-like condensibility" to be inaccurate. Price comparison shows that Solitaire® is considerably more expensive than many competitors' resin composites. **Solitaire®** is rated **Marginal** for use by the federal dental services.

(Col Hilton)

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## 56-17 Tuttnauer 2340 EA & EKA 9-Inch Autoclaves (Project 98-16)

The Tuttnauer 2340 EA and EKA sterilizers are fully-automated, microprocessor-controlled, table-top autoclaves with a 9-inch diameter by 18.5-inch deep, round, stainless-steel chamber. The EA is the 110-volt model and the EKA denotes the 220-volt model. These autoclaves provide a filtered (0.2$\mu$) ambient-air pump system to aid instrument drying. They also feature an idle temperature that allows the sterilizer chamber to remain warm between cycles to decrease processing time. The microprocessor-controlled sterilization parameters are constantly monitored to assure proper sterilization for each programmed cycle. Four icon-marked programs are available on the sealed-membrane touch pad (e.g., wrapped, unwrapped, liquids, extended drying). All sterilization parameters are user adjustable, digitally displayed, and can be recorded with an optional printer. The digital display(s) indicate cycle status during normal operation and display error codes should a cycle fail to meet the proper sterilization parameters. The autoclaves measure 14 inches high by 19.25 inches wide by 23.75 inches deep. The 110-volt (EA) sterilizer and 220-volt (EKA) sterilizer are rated at 1400 watts and 2200 watts, respectively. A dedicated electrical circuit is recommended for fault-free operation. The sterilizer is UL/C-UL Listed, IEC 601-1 and ASME certified.

**Manufacturer:**
Tuttnauer USA
33 Comac Loop, Unit 6
Ronkonkoma, NY 11779-9928
(800) 624-5836
(516) 737-4850
(516) 737-0720 FAX

**Suggested Retail Prices:**
EA $4,618.00
EA with printer $5,168.00
EKA $4,918.00
EKA with printer $5,468.00

**Government Prices:**
EA $2,379.00
EA with printer $2,709.00
EKA $2,529.00
EKA with printer $2,859.00

**ADVANTAGES:**
+ Filtered, forced-air drying speeds instrument drying.
+ Features three pre-set cycles.
+ Microprocessor-controlled resident diagnostics continuously monitor sterilizer parameters and identify malfunctions.
+ Adjustable drying time.
+ Blanket heater and insulation assures even chamber temperatures.
+ Attractive compact design.
+ Multiple configurations possible for instrument cassette loading.
+ Swing latch with "T" handle for effortless door closure.
+ Reservoir can be easily and completely drained for cleaning.
+ Standard off-the-shelf replacement parts speed some repairs.
+ Operating and servicing instructions are clear, complete, and easy to understand.
+ User-replaceable chamber and reservoir filters.
+ Optional printer is available for documenting sterilizer parameters.
+ One-piece seamless chamber.
+ Chamber door gasket can be rotated and reversed for longer life.

**DISADVANTAGES:**
- Vacuum pump bracket is susceptible to failure.
- Heating element is not field replaceable.
- Microprocessor system battery is not user replaceable.
- Overhanging cabinets may hamper reservoir filling.
- Molded, opaque power plug does not meet Air Force requirements.
- No replacement part number for dryer air filter or replacement battery.

**SUMMARY AND CONCLUSIONS:**
The Tuttnauer 2340 EA and EKA feature an ambient-air pump that forces filtered air through the heated chamber to speed and improve instrument drying. This feature minimizes wet packs, the most common complaint associated with table-top autoclaves. DIS laboratory testing confirmed the manufacturer's claims of improved drying compared to standard table-top autoclaves. The 2340 models can accommodate two standard (8"X11"x1.5") and three half-size (8"X4.5"X1.5") dental instrument cassettes placed horizontally with their standard tray-rack system. If the cassettes are placed vertically, three standard and three half-size cassettes can be sterilized. The EKA (220-volt model) decreases overall processing time in comparison to the EK (110-volt model). The control panel is easy to understand and

operate, and provides a clear indication of cycle status. The sterilizer is best used in small clinics with one or two dentists or to supplement a large, floor-standing sterilizer. During the clinical evaluation, the 2340 performed reliably and was well liked by evaluators. Of the four evaluators, three rated it "Excellent" and one rated it "Good." The **Tuttnauer 2340 EA and EKA** sterilizers are rated **Recommended** for use by the federal dental services.

(Mr Gambal, Mr King, Col Leonard)

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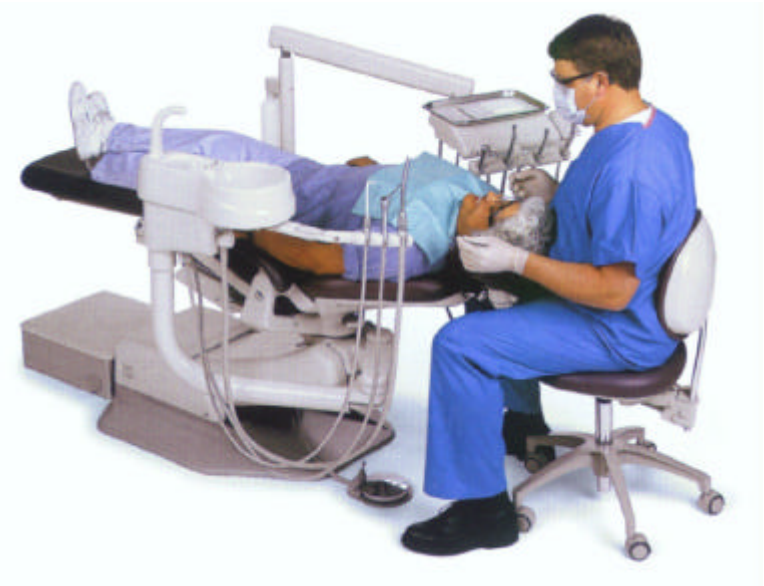
## 56-18 A-dec Radius 2122 Unit and Radius 7285 Assistant's Instrumentation (Project 98-06)

The A-dec Radius 2122 Front Hub-Mounted Dental Unit comes standard with: the controller and hoses for three handpieces; an autoclavable three-way syringe; handpiece foot control; instrument tray and pad; the connecting umbilical; and floor box with air and water filters, pressure regulators, and shut-off valves. Popular options include: handpiece fiberoptics, unit-mounted chair function touch pad, separate water system (SWS), and control arm mounted air brake. The radius mount allows for active left- to right-hand conversion without tools. The Radius 7285 Rear Hub-Mounted Assistant's Instrumentation with Cuspidor features a vitreous china bowl with timed cup filler and regulated rinse flow. Both the cup filler spout and the water flush spout are easily removed for cleaning. The assistant's instrumentation features an autoclavable three-way syringe, autoclavable saliva ejector, autoclavable quick-disconnect high volume evacuator, solids collector, chair touch pad, and a water quick-disconnect with flow control (for scaler connection). The unit can be configured for either 110 or 220 volts and is UL listed, CSA certified, and ADA accepted.



**Manufacturer:**
A-dec
2601 Crestview Drive
Newberg, OR 97132
(800) 547-1883
(503) 538-7478
(503) 538-0276 FAX

**Suggested Retail Prices:**

| | |
|---|---|
| Radius 2122 Traditional-Style Delivery System | $5380.00 |
| Touch Pad | $285.00 |
| Handle with Air Brake | $100.00 |
| Two-Position Fiberoptics System and Hoses | $674.00 |
| Radius 7285 Assistant's Instrumentation and Touch Pad with Cuspidor | $2150.00 |

**Government Prices:**

| | |
|---|---|
| Radius 2122 Traditional-Style Delivery System | $2932.00 |

| | |
|---|---|
| Touch Pad | $155.00 |
| Handle with Air Brake | $55.00 |
| Two-Position Fiberoptics System and Hoses | $367.00 |
| Radius 7285 Assistant's Instrumentation and Touch Pad with Cuspidor | $1171.00 |

**ADVANTAGES:**
+ Presents a less cluttered, more open appearance to the operatory.
+ Front and rear hubs utilize radius needle bearings for smooth operation.
+ Uniform weight distribution provides stability in all operating positions.
+ Vacuum cut-off makes it easy to remove the solids trap.
+ Provides increased flexibility for positioning and comfort.
+ Written protocol is provided for separate water system.
+ Flush valve allows user to flush one or all handpieces.
+ Converts easily from left- or right-hand delivery.
+ Has compensated control arm for drift-free placement with air lock.
+ Dual intensity-level fiberoptic system is designed to increase bulb life and reduce heat buildup in the handpiece hose coupler.
+ Cleanable exhaust air/oil trap.
+ Good documentation with diagrams covering setup, maintenance, and operation.
+ UL listed, CSA certified, and ADA accepted.

**DISADVANTAGES:**
- The complete integrated delivery system (chair/unit/light) is not UL listed or CSA certified.
- Requires technician for left- to right-hand conversion of the air brake and touch pad control.
- Manufacturer-supplied tools are required for adjustments to air and water.
- Difficult to adjust air and water when control head is barrier protected.

**SUMMARY AND CONCLUSIONS:**
The A-dec Radius 2122 Unit and Rear Hub-Mounted Assistant's Instrumentation met or exceeded the requirements of the DIS Dental Treatment Unit Checklist. Although the system swings from left- to right-hand use rather simply and easily for temporary use, a technician and tools are required for a permanent change. Compared to post/box-mounted systems, the Radius system offers improved ergonomic design, is easier to clean, offers greater positioning flexibility, and provides a less cluttered operatory. The Radius platform-based system is more stable than traditional post-mounted systems due to a more even weight distribution. The Radius 7285 Cuspidor with its vitreous china bowl and removable spouts is easy to clean and maintain. The placement of air/water adjustments on the side of the control head are difficult to access when the control head is barrier protected. All clinical evaluators rated the Radius 2122 Unit and Assistant's Instrumentation as "Excellent." The **A-dec Radius 2122 Unit** and **Radius 7285 Rear Hub-Mounted Assistant's Instrumentation** is rated **Acceptable** for use by the federal dental services.

(Mr Gambal, Col Leonard)

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## 56-19 A-dec Cascade 1040 Dental Chair (Project 97-43)

The Cascade 1040 Dental Chair recently was re-designed to offer the ability to attach the unit, operatory light, and assistant's instrumentation off of hubs located below the toeboard (light and unit) and at the rear of the chair (assistant's instrumentation). This design provides increased positioning versatility, including the ability to convert the unit from right- to left-hand delivery in minutes. The Cascade 1040 is hydraulically powered with synchronous operation of the chair back and seat to reduce the need for patient realignment during positioning. Standard features of the chair include an eight-function foot switch, Naugahyde upholstery, a removable double-articulating headrest, and armrests that automatically recess as the chair returns to the upright position. This last feature facilitates patient entry and exit from

the chair. Other standard features include a clear vinyl toeboard cover, sculptured foam cushioning, a safety plate shut-off, and baked epoxy finish on all metal surfaces. A membrane touch pad is available that duplicates the functions of the foot switch. Smooth, seamless upholstery is standard and a plush upholstery upgrade is available. The chair rotates 15 degrees in either direction for increased patient access and provider comfort. The chair measures 41 inches high by 70 inches long by 27 inches wide and has a shipping weight of 300 pounds. The Cascade 1040 can be configured for either 110 or 220 volts and is UL listed, CSA certified, and ADA accepted.

**Manufacturer:**
A-dec
2601 Crestview Drive
Newberg, OR 97132
(800) 547-1883
(503) 538-7478
(503) 538-0276 FAX

**Suggested Retail Price:** $7,150.00
With Upgrade Upholstery: $7,600.00

**Government Price:** $3,861.00
With Upgraded Upholstery: $4,104.00

**ADVANTAGES:**
+ Meets or exceeds all military specifications for dental patient chairs.
+ Hydraulic cantilever system provides smooth, quiet operation.
+ Has eight-function foot control with four programmable positions and optional touch pad.
+ Well-illustrated operation, maintenance, and installation manuals.
+ Patients reported that the upgrade plush upholstery was very comfortable.
+ Is comfortable for patients of different heights.
+ Provides easy access for the patient.
+ Stable in all operating positions.
+ Smooth, seamless upholstery and overall design facilitates asepsis.
+ Foot controls sealed for ease of disinfection.
+ Has adjustable, double-articulating headrest.
+ Pivots and bushings require no lubrication.
+ Is UL listed, CSA certified and ADA accepted.

**DISADVANTAGES:**
- Comprehensive service guide is not a standard issue item with purchase.
- Service guide lacks part numbers and procedures for removing and installing hydraulic cylinders.

**SUMMARY AND CONCLUSIONS:**
The Cascade 1040 Dental Chair met or exceeded all specifications on the DIS patient chair evaluation checklist and ADA Specification No. 46 for dental chairs. It comfortably supports the patient during normal dental procedures in both the upright and supine positions. It provides for movement of the unit, light, and assistant's instrumentation with pivot hubs under the toeboard and rear of the chair. Access to the chair is convenient and safe. The simple, modern design of the chair facilitates established infection control procedures such as disinfection and barrier protection. The optional plush upholstery on the DIS evaluation chair contained seams, but clinical evaluators noted no difficulty in cleaning or disinfecting it. Patients consistently commented on the comfort of the chair with this upholstery. The baked epoxy-coated metal substructure was easy to clean and resistant to marring. **The A-dec Cascade® 1040 Dental Chair** is rated **Acceptable** for use by the federal dental services.

(DT1 McMillan, Col Leonard, Mr Gambal)

## 56-20 AXCS Dental Chair (Project 98-10)

The AXCS Dental Chair is a new addition to the DENTAL-EZ line that is a revised version of the E3000 Dental Chair. Like the E3000, the AXCS is hydraulically powered and has synchronous operation of the chair back and seat that reduces the need for patient realignment during positioning. The standard features of the chair include seamless Naugahyde upholstery with BeautyGard finish, a thin 1.5-inch headrest with sliding adjustment mechanism, and drop-down locking armrests that facilitate patient ingress and egress from the chair. The AXCS chair may be controlled by a foot control (included) or by the Distinctive Touch Control Module and is designed to be operated by up to two separate controls. The controls are linked to a dual microprocessor master control that allows the user to set three separate programs in addition to standard up/down, recline/incline chair adjustments. A thin-profile back with positive lumbar support is purported to support the patient comfortably while increasing provider access. Other standard features include a clear vinyl toeboard cover, sculptured foam cushioning on the back and seat, a back rest hinge point that is said to be ergonomically correct, a safety plate shut-off, and a powder coat finish on all metal surfaces. The BeautyGard protective finish on the Naugahyde upholstery is formulated with antimicrobial agents and is said to offer protection against microbial growth and allows the use of disinfectant products without damage. A swivel-brake lever located beneath the seat provides a 30-degree rotation in either direction for patient access and provider comfort. An optional Air Glide mechanism allows the chair to lift up off of the floor and roll into a desired position facilitating wheelchair and gurney access. The Air Glide features an inflatable bladder and two steel casters for movement. The chair measures 41 inches high by 75 inches long by 27 inches wide and has a shipping weight of 392 pounds. The AXCS can be configured in either 110 or 220 volts and is UL listed and CSA certified.

**Manufacturer:**
DENTAL-EZ, Inc.
Highway 31 South
Bay Minette, AL 36507
(800) 275-7956

**Suggested Retail Price:**
$5,350.00 Includes seamless Naugahyde upholstery, multi-function foot control, thin 1.5-inch headrest, drop-down locking armrests, clear vinyl toeboard cover, and standard swivel base.

$5,915.00 Same as above with Air Glide base.

**Government Price:**
$2,834.86 Includes seamless Naugahyde upholstery, multi-function foot control, thin 1.5-inch headrest, drop-down locking armrests, clear vinyl toeboard cover, and standard swivel base.

$3,134.24 Same as above with Air Glide base.

**ADVANTAGES:**
+ Provides easy access for the patient.
+ Three-year warranty on parts.
+ Stable in all operating positions.
+ Armrests were easy to move into and out of position.
+ Seamless Naugahyde upholstery cleaned easily.
+ Touch pad and foot controls sealed for ease of disinfection.
+ Three programmable presets for patient positioning.
+ Optional adjustable double-articulating headrest.
+ Meets all military specifications for dental chairs.
+ Is UL listed and CSA certified.

**DISADVANTAGES:**
- Operation, installation, and maintenance manuals lacked detailed schematics.

**SUMMARY AND CONCLUSIONS:**
The DENTAL-EZ AXCS Dental Chair supports the patient during normal dental procedures in either the upright or supine positions. Access to the chair is convenient and safe due to a redesigned base plate. The optional Air Glide mechanism made it easy to move the chair for cleaning and improved access. The simple, modern design of the chair facilitates established infection control procedures such as disinfection and barrier protection. Seamless upholstery and an epoxy powder-coated framework make cleaning easy and less time consuming. Providers liked the drop-down armrests and the ability to preset up to three patient positions. Operating and maintenance instructions were complete but lacked detailed schematics. Two out of three evaluators rated the AXCS as "Good" or "Excellent." The **DENTAL-EZ AXCS Dental Chair** is rated **Acceptable** for use by the federal dental services.

(SSgt Martin)

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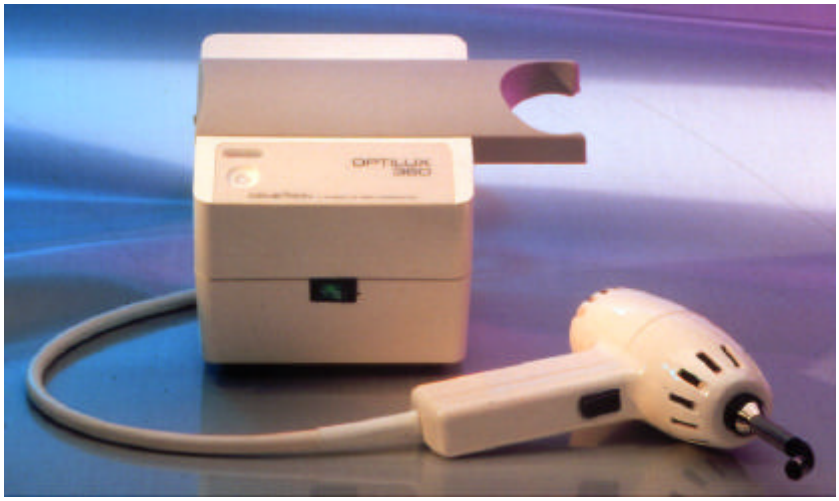
## 56-21 Optilux 180 & 360 Polymerization Units (Projects 98-17 & 98-18)

The Optilux 180 & 360 are Kerr/Demetron's new lower-priced entries into the visible light curing market. Both are hand-held, corded, visible light polymerization units that consist of a pistol-style handpiece attached via a six-foot cord to the power unit. The Optilux 360 and Optilux 180 are identical except that the 360 also contains an LED range-type intensity meter, upgraded handpiece to power module cord, and standard Demetron 8-mm diameter curing tip. The Optilux 180 comes with a less expensive 8-mm diameter amber curing tip. The power unit is designed for table top use but can be wall-mounted with an optional wall mount assembly. Irradiance is generated by a 52-watt/10-volt halogen bulb instead of the 80-watt Optibulb found in other Optilux models. On the Optilux 360, a green light-emitting diode (LED) light illuminates to indicate that the light output is of adequate intensity for curing, while illumination of the yellow LED light indicates the need for extended curing time. A red light signifies that lamp intensity is insufficient and the unit should not be used. Demetron claims that a minimum of 300 $mW/cm^2$ is required to illuminate the green LED. Light activation is simply accomplished by depressing the trigger on the handpiece. Both units provide only one timed exposure setting (60 seconds), but an audible beep every 20 seconds alerts the operator to the progress of exposure. An internal voltage regulator is standard and ensures a steady electrical supply that is reported to increase lamp life by eliminating voltage fluctuations to the unit. The cooling fan operation is proportional to the length of time the bulb is activated. The units are CSA certified and bear the CE mark. They are available in both 120- and 240-volt models.

**Manufacturer:**
Kerr/Demetron
1717 West Collins Avenue
Orange, CA 9286-9880
(800) 537-7123
(714) 516-7400
(800) 537-7345 FAX



**Suggested Retail Price:**
$595.00 Optilux 180
$856.00 Optilux 360

**Government Price:**
$305.90 Optilux 180
$428.36 Optilux 360

**ADVANTAGES:**
+ Sterilizable curing tips.
+ Internal voltage regulator.
+ Accurate range-type intensity meter (Optilux 360 only).
+ Light shield that is easily positioned.
+ 360-degree-swiveling curing tips.
+ Cooling fan operation is proportional to bulb usage.
+ Ergonomically-placed on/off activation switch.
+ Easily cleaned or barrier protected.
+ CSA certified to IEC 601-1 electrical safety standard.

**DISADVANTAGES:**
- Minimally adequate irradiance with 11-mm curing tip (353 mW/cm$^2$).
- Insufficient irradiance with 13-mm curing tip (296 mW/cm$^2$).
- No timer for setting length of exposure.

**SUMMARY AND CONCLUSIONS**:
The Demetron Optilux 180 & 360 Polymerization Units are well-designed, easy-to-use, light weight units that are easily positioned to reach all areas of the oral cavity. These units are Demetron's entries into the economy curing light market. The range-type intensity meter standard on the Optilux 360 was the most accurate of any built-in intensity meter tested by DIS. Because the lights utilize a 52-watt halogen bulb rather than the 80-watt Demetron Optibulb found in Demetron's other lights, they exhibit reduced irradiance. Use of curing tips with diameters greater than 8 mm is not recommended by DIS because our laboratory testing demonstrated minimally adequate irradiance with an 11-mm tip and insufficient irradiance with a 13-mm tip. The curing tips can be autoclaved and disinfected, however products with high concentrations of glutaraldehyde or phenol tend to be corrosive to fiberoptic glass. Autoclaving the curing tip resulted in no loss of light intensity and no deleterious effects on the physical integrity of the tip. Three of the four clinical evaluators rated the Optilux 180 & 360 as "Good" and one gave them an "Average" rating. **The Demetron Optilux 180 & 360 Polymerization Units** are rated **Acceptable** for use by the federal dental services.

(Col Leonard)

## 56-22 Schick Computed Dental Radiography (CDR) Kit (Project 97-42)

The Schick CDR Kit is part of a computerized imaging system that uses an electronic sensor in place of conventional radiographic film to produce images within seconds with reduced radiation exposure to the patient (up to 90 percent). The Schick CDR Kit consists of a sensor and a remote module that is linked to a computer (IBM Thinkpad 760 XL/Toshiba 530 CDT docking station) with a plug-in capture card and software. The sensor consists of an integrated circuit with photodetectors, and is available in three different sizes: size 0 for pediatric periapicals, size 1 for anterior periapicals or pediatric bitewings, and size 2 for adult bitewings and periapicals. The integrated circuit is covered with a high-resolution phosphor screen that converts x-ray energy into visible light that is sensed by the photodetectors. Barriers are available for infection control purposes or the sensor can be disinfected with a chemical germicide. The sensor is attached to a remote module unit via a thin, flexible cable and connects through an edge card connector. The size 2 sensor used in this evaluation measures 43 x 29 mm with an imaging area of 36.5 mm x 25.2 mm and is 5 mm thick. The remote module measures 3 inches by 3 inches square, contains the support circuitry for the sensor, and communicates with the computer via a 10-foot-long cable. The remote module sends the signal received from the sensor to a capture card inside the computer. The software provides an interface protocol to retrieve the digital video data and store it in memory. It also provides a way for displaying, storing, printing the image, and is designed to facilitate enhanced viewing of the image(s). This includes the ability to zoom and pan, to compose multiple images, and to change the contrast of images. The minimum PC requirements include: 486 DX2 66, 12MB RAM, and Windows 3.11. The CDR Kit is compatible with all radiographic tube heads. The CDR Kit includes a 30-day adjustment period to coordinate the software package with each individual PC and a one-year warranty including sensor replacement if damaged within the first year.


**Manufacturer:**
Schick Technologies, Inc.
31-00 47th Avenue
Long Island City, NY 11101
(800) 645-4312
(718) 937-5765
(718) 482-2050 FAX

**Suggested Retail Price:**
$6,995.00 One CDR Kit. Contains CDR software, one sensor, CDR interface board, foot pedal, training video, sheaths, and holder set.

**Government Price:**
$6,495.00 One CDR Kit. (Same contents as listed above)

**ADVANTAGES:**
+ Faster imaging times; particularly helpful when performing endodontics.
+ Portability due to compactness.
+ No chemicals.

+ Convenient.
+ Easy-to-use.
+ Less equipment than a cart system.
+ Ability to digitize images for storage and electronic transfer.
+ No waste produced.
+ Occupies minimal space in dental treatment room.

**DISADVANTAGES:**
- System must be disconnected from docking station and reconnected after power outages.
- 7- to 8-second delay for image to appear.
- Fragile connection between cord and sensor.
- Poor anterior film holder.
- Relatively high cost.
- Less clarity/resolution than standard film.
- Sensor is bulky/inflexible.
- Learning curve to set-up/use.

**SUMMARY AND CONCLUSION:**
The Schick Computed Dental Radiography (CDR) Kit is an advanced digital radiography system that rapidly produces radiographic images and eliminates the need for conventional dental film, chemicals, and processing equipment. The CDR Kit is designed for a practice that has already invested in a computer system and desires digital capability. The CDR Kit consists of one sensor, a remote module, and a CDR for Windows software package. The sensor tested (size 2) has rounded corners within a smooth seamless design and can be used with a range of holders (e.g., Rinn, Snap-a-Ray). Disposable barrier sheaths are provided for proper infection control of the sensor. According to the manufacturer, the sensor can be disinfected with a chemical germicide, if desired. The CDR Kit was rated favorably by the clinical evaluators but its major shortcomings were decreased image clarity and resolution as compared to conventional radiographic film. The portability, compactness, fast image time, and reduced equipment of this system were considered highly desirable for deployments. The **Schick CDR Kit** is rated **Acceptable** for use by the federal dental services. Please note Schick Technologies has upgraded the CDR Kit since this evaluation and it now has a direct connection from the sensor to the PC via a USB interface which eliminates the docking station.

(Col Bartoloni)

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## 56-23 Synopsis of Vital Signs Monitors (Project 98-35)

Conscious sedation is an integral feature in the delivery of federal service dental care. Although the scope of care varies by facility, most dental care facilities offer conscious sedation as an adjunct in providing oral surgical, periodontal, pediatric, and hospital dental care. The American Association of Oral and Maxillofacial Surgeons (AAOMS) Parameters of Care and AFI 47-101 provide guidance concerning local anesthesia, conscious sedation (including nitrous oxide) and deep sedation/general anesthesia.

Conscious sedation (including nitrous oxide) requires the monitoring of cardiac and respiratory functions as well as level of consciousness. At a minimum, the following are required:

1. Blood pulse oximeter for oxygen saturation and pulse rate/rhythm.
2. Visual observation for level of consciousness, airway patency, protective reflexes, color of skin, and mucosa.
3. Plus <u>one</u> of the following:
   -blood pressure cuff (manual or automatic)

-pretracheal or precordial stethoscope
-electrocardiogram (ECG)

General anesthesia (including deep sedation) requires more stringent evaluation of cardiac and respiratory functions. Current guidelines mandate capnography for general anesthesia. Capnography monitors cardiopulmonary function by measuring carbon dioxide levels and is usually accomplished through the endotracheal tube. For non-intubated patients, several oral and nasal $CO_2$ sampling cannulas are available, however capnography via cannulas is not as accurate as readings made via endotracheal intubation.

When considering a vital signs monitor for a facility, many features deserve consideration: cost, convenience, upgrade capability, and the ability of the unit to produce a written record of vital signs. For most facilities providing conscious sedation, equipment that evaluates blood pressure, pulse, and pulse oximetry should provide the minimal monitoring that is required. However, it appears wise to consider units capable of cardiac monitoring for patients whose pre-anesthesia evaluation indicates the need. Although not presently required, it might be prudent to consider equipment that can be upgraded to include capnography if future guidelines mandate it.

Attachment 2 contains information on vital signs monitors from manufacturers who responded to our request for information.

(Mr King, Mr Gambal, Lt Col Roberts, Col Leonard)

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## 56-24 The Wand System (Project 97-40)

The Wand System introduced by Milestone Scientific, represents an alternative to the traditional local anesthetic syringe and injection. The Wand is a computer-controlled unit that accommodates a conventional anesthetic cartridge and needle through a disposable, plastic, pencil-like handpiece that is attached via sterile microtubing. The handpiece is ultra-light and held with a modified pen grasp. The computer unit is activated by a foot control that automates the delivery of local anesthetic at a precise pressure and volume ratio with an advancing drip. The Wand can be used for all traditional local anesthetic procedures including block injection, infiltration, palatal, and periodontal ligament (PDL) injections. A new injection technique for the maxillary arch was identified during the development of The Wand called the Anterior Middle Superior Alveolar (AMSA) nerve block. The portable unit weighs 4.6 pounds, and measures 7 inches in height, 2 1/8 inches in width, and 6 1/4 inches in depth. The Wand is both UL listed, CSA approved, and ADA accepted.

**Manufacturer:**
Milestone Scientific
151 South Pfingsten Road
Deerfield, IL 60015
(800) 862-1125
(847) 272-3207
(847) 559-1065 FAX

**Suggested Retail Price:**
$999.00 Wand System (Drive unit, 100 disposable handpiece sets, 100 disposable luer lock needles, and technique video/manual)

**Government Price:**
$650.00 Wand System (Same description as above)

**ADVANTAGES:**
+ Sufficient length of tubing to accommodate most operatories.
+ Less intimidating to patients than standard syringe.
+ Sleek appearance of handpiece.
+ Excellent access/ease of positioning for patients with limited opening.
+ Successful AMSA injection.
+ UL listed, CSA approved, ADA accepted.

**DISADVANTAGES:**
- Aspiration feature is time consuming.
- Unreliable PDL injection; difficult to orient bevel.
- No claim for intrapulpal injection.
- Bulky with too many parts.
- Foot pedal hard to push/control.
- Need to look away from injection site to gauge quantity of solution administered.
- Erratic control of fluid pressure.
- Annoying beeping sound.
- Changing carpules is time consuming.
- Delivers anesthetic solution at too slow a rate.
- Unit is not hard wired and lacks hospital-grade plug.
- No service manual.

**SUMMARY AND CONCLUSIONS:**
Overall, the evaluator responses were mixed. Three of the evaluators rated The Wand as "Good," and the other two rated the product as "Fair." The majority of evaluators felt there were no major clinical advantages to The Wand, and that the traditional syringe and needle provided the same benefits for less cost with minimal armamentarium. None of the evaluators would consider purchasing The Wand for their respective clinics. The manufacturer has made several product changes since the initial production of the system which addresses some of the criticisms made by our clinical users. The changes include an adjustable volume control to reduce the noise level of the audio alarm, a mounting bracket that allows the drive unit to be attached to a standard dental unit post, and a new “quick start” video tape and card set. The **Wand System** is rated **Marginal** for use by the federal dental services.

(Col Bartoloni)

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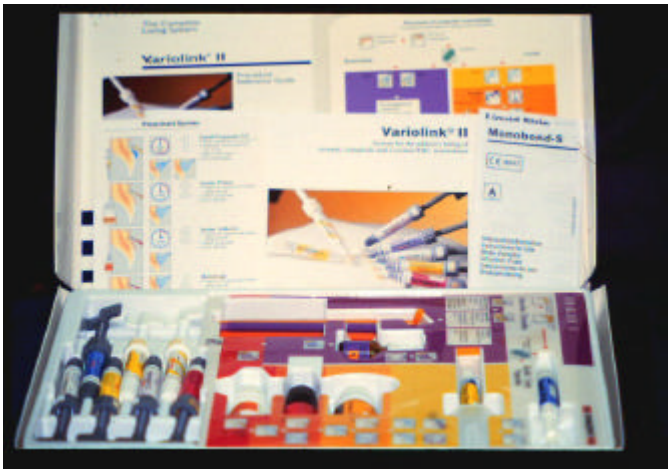
## 56-25 Variolink II (Project 98-13)

Variolink II is a resin composite luting cement marketed by Ivoclar North America for cementation of indirect all-ceramic, Ceromer, and resin composite restorations. It is especially recommended for the insertion of IPS Empress restorations. Variolink II is said to be dual cured. Variolink II, the successor to Variolink, is purported to exhibit improved shade range, fluoride release, polishability, and decreased sensitivity to ambient light. Variolink II is available in five shades, three degrees of translucency, and three consistencies (low, high, and ultra-high viscosity). The Variolink II Professional Set includes both low- and high-viscosity cement. The ultra-high viscosity is designed for the ultrasonic cementation technique and must be ordered separately. Vivadent states that Variolink II has a film thickness of less

than 22 microns.

Variolink II can be polymerized by both self- and visible-light curing. To reduce sensitivity to ambient light, Vivadent has developed a proprietary catalyst system designed to impart a deliberate "inhibition phase." Vivadent states that this inhibition system prevents polymerization but is overcome quickly (0.5 seconds) under the influence of a visible light curing unit's intensity. Vivadent claims that depths of cure of Variolink II vary with shade of cement, from two millimeters (base opaque) to six millimeters (transparent).

Vivadent uses ytterbium trifluoride ($YbF_3$) in all of its resin composite materials. $YbF_3$ was originally utilized as a radiopaquing agent but has been shown also to release fluoride. In addition, Vivadent has added barium-aluminum-fluorosilicate glass to Variolink II, similar to Vivadent's compomer Compoglass®. The additive effect of these two fluoride-containing materials is the basis for Vivadent's claim of Variolink II's increased potential for fluoride release.




Variolink II is advertised as being more polishable than Variolink. According to Vivadent, this has been achieved by reducing the maximum particle size from seven microns to approximately three microns. The mean particle size of Variolink II is approximately one micron, with silanized barium glass filler being the predominate filler particle. The radiopacity of barium glass combined with the additive effect of $YbF_3$ is purported to give Variolink II 4.5 times the radiopacity of the two-millimeter aluminum standard.

**Manufacturer:**
Ivoclar North America, Inc.
175 Pineview Drive
Amherst, NY 14228
(800) 533-6825
(716) 691-0010
(716) 691-2285 FAX
www.ivoclarna.com

**Suggested Retail Price:**
$350.00 Variolink II Professional Set
- five 3-gm syringes of Variolink II Base Paste (one each of the following shades):
  -- Transparent
  -- White (A1)
  -- Opaque white
  -- Yellow (A3)
  -- Brown (A4)
- one 3-gm syringe of low-viscosity Variolink II catalyst, yellow shade (A3)
- one 3-gm syringe of high-viscosity Variolink II catalyst, yellow shade (A3)
- one 2-gm syringe of Total Etch etching gel
- one 6-gm bottle of Heliobond
- one 5-gm bottle of Monobond-S
- one 3-gm bottle of Syntac Primer
- one 3-gm bottle of Syntac Adhesive

- one 2.5-gm syringe of Liquid Strip
- Brush holders, brushes, mixing pads, various cannulas

**Government Price:**
$135.00 Variolink II Professional Set (contents as listed above)

**ADVANTAGES:**
+ Professional Set uniquely contains two-viscosity delivery system.
+ Both low- and high-viscosities have acceptable film thicknesses.
+ Delivery system is easy to use and integrates well into existing clinical technique.
+ Meets esthetic needs of average general practice.
+ Easy post-cementation cleanup.
+ Provided with comprehensive and detailed written instructions.
+ Easy-to-read colored flash cards provide instant technique reference.
+ Most radiopaque of all resin systems evaluated by DIS.
+ Adequate working time.
+ Includes color-coded straightforward Syntac bonding system and silane porcelain primer.
+ Cement syringes are well labeled and color coded.

**DISADVANTAGES:**
- Only one try-in paste is included (glycerin transparent gel); others must be purchased separately.
- No ceramic etch is included.
- No lower-chroma shades (i.e., A2, B1, B2) are available.
- Slightly more expensive than other dual-cure esthetic resin luting systems.

**SUMMARY AND CONCLUSIONS:**
Variolink II is a dual-cure esthetic resin cement luting system marketed by Vivadent that was highly rated by clinical users. Variolink II uniquely offers a choice of three viscosities of resin cement. Clinical users found the manufacturer's instructions comprehensive and easy to read; colored flash cards were included that provided quick reference. Variolink II's dispensing system was easy to use and integrated well into existing users' clinical techniques. It met the esthetic needs of the general dental practice, was found to be easily manipulated, and offered easy post-cementation clean up. Variolink II exhibits adequate working time, film thickness, and radiopacity. **Variolink II** is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

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## 56-26 RESTORE Ultrasonic Cleaner and Instrument Protectant (Project 98-43)


RESTORE Ultrasonic Cleaner and Instrument Protectant is an alkaline liquid cleaner that is reported to clean, restore, and protect stainless steel dental instruments in one step. RESTORE can be used in two ways: diluted for use in an ultrasonic unit or full strength as a pre-soak. Manufacturers claim that RESTORE prevents instrument corrosion with daily use in an ultrasonic cleaner and restores corroded and stained instruments when used full strength. RESTORE is supplied in a 32-ounce plastic container with a built-in squeeze-measuring top for precise dilution measurements. The active ingredient is tetrasodium ethylenediaminetetraacetate (pH 10.8 to 11.4). RESTORE is not recommended for prolonged use on aluminum or other soft metals (e.g., brass, copper).

**Manufacturer:**
Biotrol International
650 South Taylor Avenue, Suite 20
Louisville, CO 80027
(800) 822-8550
(303) 673-0341
(303) 673-0346 FAX

**Suggested Retail Price:**
$247.00  One (1) case (four 32-oz bottles)

**Government Price:**
$135.85  One (1) case (four 32-oz bottles)

**ADVANTAGES:**
+ Removes rust from dental burs when used with the ultrasonic.
+ Reduces rust formation on dental burs when used daily with the ultrasonic.
+ Excellent cleaning of dental burs.
+ Easy-to-use.
+ No apparent adverse effect on burs.
+ Non-offensive odor.
+ Easily rinsed off.
+ Non-flammable.
+ Does not need to be used with distilled water.
+ Cost effective because it is available as a concentrate.
+ Built-in measuring system.
+ Does not irritate skin.

**DISADVANTAGES:**
- Degrades aluminum after prolonged use.
- No claim for bioburden removal.
- Did not remove rust when used as pre-soak alone; requires manual scrubbing.

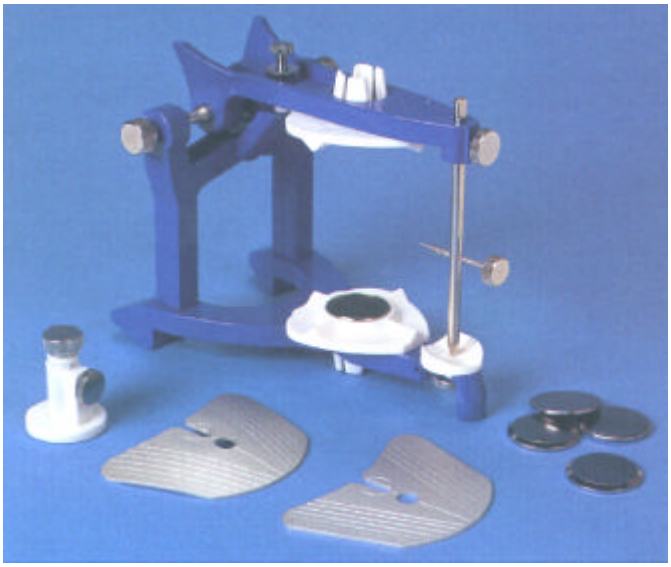
**SUMMARY AND CONCLUSIONS:**
RESTORE is an ultrasonic cleaner and instrument protectant. RESTORE can be used full strength as a pre-soak or diluted with water for ultrasonic cleaner use. DIS studies revealed that when used daily in an ultrasonic cleaner, RESTORE reduces rust formation on dental burs. RESTORE removed existing rust as well when used with the ultrasonic cleaner, but when used full strength without ultrasonic use, the product did not remove rust without manual scrubbing. It is important to note that RESTORE did produce surface corrosion on aluminum bur blocks after prolonged use (24 hours) as a pre-soak, but did not affect plastic bur blocks. **RESTORE** is rated **Acceptable** for use by the federal dental services.

(Col Bartoloni, TSgt Pena)

# LABORATORY

## 56-27 QuickMount Magnetic System (Project 98-25)

QuickMount Magnetic System permits the quick and accurate removal and replacement of mounted casts on several types of semi-adjustable and fully adjustable articulators. It is compatible with the following articulators: Whip Mix, SAM, Panadent, Hanau (Modular), Hanau (Wide Vue), Hanau 1 Pin, Denar, Dental Hoby, Balance, Artex, and Quick. QuickMount has white and blue mounting plates for different articulators. The screws with attached rare earth magnet come in 13-mm and 25-mm lengths. Mounting screws are replaced with the QuickMount magnetic screws. A QuickMount plate is placed on the articulator and the magnetic screw is gently tightened. The metal disc is then placed in the plate and the magnetic screw is tightened with the wrench provided with the plates. Casts are then mounted to the articulator in the normal fashion. Mounted casts can be removed by interrupting the magnetic attraction between the disc and magnet.



**Manufacturer/Source:**
Whip Mix Corp.
361 Farmington Avenue
P.O. Box 17183
Louisville, KY 40217
(800) 626-5651

**Suggested Retail Price:**

| | | |
|---|---|---|
| $38.50 | 28701 | QuickMount Plates (white, pkg. of 20) with metal discs |
| $38.50 | 28702 | QuickMount Plates (blue, pkg. of 20) with metal discs |
| $23.00 | 28703 | QuickMount Magnetic Screw, 13 mm (includes plastic wrench) |
| $23.00 | 28704 | QuickMount Magnetic Screw, 25 mm |

**Government Price:**

| | | |
|---|---|---|
| $29.90 | 28701 | QuickMount Plates (white, pkg. of 20) with metal discs |
| $29.90 | 28702 | QuickMount Plates (blue, pkg. of 20) with metal discs |
| $19.15 | 28703 | QuickMount Magnetic Screw, 13 mm (includes plastic wrench) |
| $19.15 | 28704 | QuickMount Magnetic Screw, 25 mm |

| ITEM NO. | 28701 | 28702 | 28703 | 28704 |
|---|---|---|---|---|
| | White Plates (Pkg. 20) | Blue Plates (Pkg. 20) | 13 mm Magnetic Screw | 25 mm Magnetic Screw |
| **Whip Mix:** 8500, 8300, 2200, DB2000 | X | | 2 | |
| **Whip Mix:** 8340, 2240, 2340, 3040, 3140 | X | | 1 | 1 |
| SAM | | X | 2 | |
| Panadent | X | | 2 | |
| Hanau (Modular) | X | | 2 | |
| Hanau (Wide Vue) | X | | 1 | 1 |
| Hanau 1 Pin | | X | 2 | |
| Denar | | X | 2 | |
| Dental Hoby | | X | 2 | |
| Balance | | X | 2 | |
| Artex | | X | 2 | |
| Quick | | X | 2 | |

**ADVANTAGES:**
+ Easy installation.
+ Securely holds mounted casts.
+ Casts do not rotate on the articulator
+ Do not have to unscrew mounted casts.
+ Casts can be quickly removed from the articulator.

**DISADVANTAGES:**
- Rear pinhole of the plastic plates may need widening to accommodate some articulators.

**SUMMARY AND CONCLUSIONS:**
QuickMount Magnetic System saves time by allowing the quick removal and accurate replacement of mounted casts. With the standard plate screws on some types of articulators, casts can be accidentally rotated during replacement. A slight rotation can alter the occlusal characteristics of the restoration. QuickMount's design prevents mountings from rotating when they are replaced on the articulator. The plastic mounting plates are durable and withstood multiple mountings. Plastic mounting plates resist warping unlike some of the thinner metal mounting plates on the market. Because the rare earth magnets are very strong, casts were not accidentally dislodged during the evaluation. Attraction of the rare earth magnets is not expected to show any noticeable lessening. The above chart indicates the appropriate components for different articulators. **QuickMount Magnetic System** is rated **Acceptable** for use by the federal dental services.

(MSgt Ryerson)

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## 56-28 LabMeister (Project 97-29)

LabMeister is a device to reduce the strain of compressing and decompressing Handler Manufacturing 61B two-flask compresses (flask carriers). Two styles are available: a 9/16-inch hexagonal handle model in black and a 7/16-inch handle model in white. The base of the loaded compress is placed between two stops welded to the base of the LabMeister. The device's stabilizing rod is inserted in a hole located at the top of the compress. The handle is inserted in the screw at the top of the compress and turned. The LabMeister is fixed to the work surface with four 1/4-inch bolts (included). The handle is clipped to the back of the vertical component for storage. The end of the handle features a hook for

retrieving compresses from tanks of hot water. The handle rotates left and right to facilitate operation.

**Manufacturer/Source:**
EastFlex Corporation
1117 North Graham Avenue
Indianapolis, IN 46219

East Coast Regional Office
8218 Wisconsin Avenue
Bethesda, MD 20814-3107
(301) 652-3728

**Suggested Retail Price:** $299.95

**Government Price:** $270.00

**ADVANTAGES:**
+ Securely holds flask compresses.
+ Uses existing flasks and compresses.
+ Eases the compression and decompression of the flask compress.
+ Simplifies the operation for individuals of various heights and strengths.
+ Evaluators reported the LabMeister reduced strain to hands, arms, and back.

**DISADVANTAGES:**
- May need to modify the flask compress to fit the LabMeister.
- Will not accommodate the 61A single or 61C triple flask compress.

**SUMMARY AND CONCLUSIONS:**
The LabMeister is a labor-saving device designed for use by technicians of various heights and physical abilities. It is well made with durable materials. Once bolted to a fixed work surface, it facilitates the compression and decompression of flask compresses with relative ease. Evaluators reported its best feature was for decompressing hot flask compresses where the metal had expanded. Similar systems are currently on the market, however they require the additional purchase of special flasks and other accessories. The LabMeister accommodates the standard Handler 61B two-flask compress.
**LabMeister** is rated **Recommended** for use by the federal dental services.

(MSgt Ryerson)

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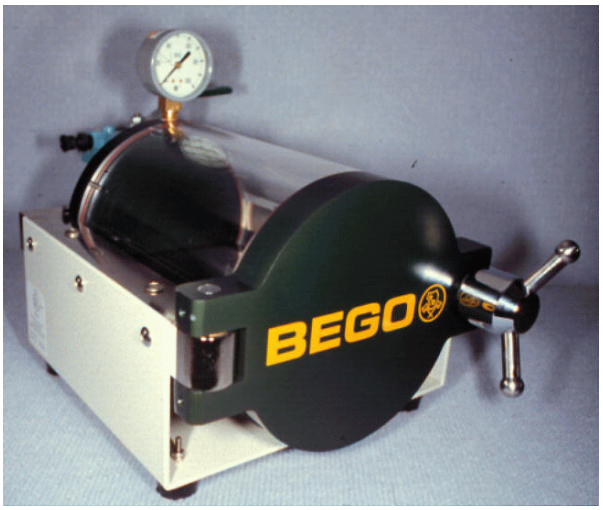
## 56-29 Wiropress SL (Project 97-28)

The Wiropress SL is a pressure vessel designed to reduce the size and number of voids in casts, investment molds, acrylic resins, and duplicating materials. It is a tabletop unit that maintains a 50-psi atmosphere while the material hardens. A quick-disconnect air line attaches to the bench top air supply. The vessel accommodates three to four full-arch impression trays, 15 small (1.25”) investment rings, 12 medium (1.5”) investment rings, or 4 large (1.75”) investment rings.

**Manufacturer/Source:**
Bego USA
1088 Main Sreet, Suite 200
Pawtucket, RI 02860
(800) 342-2346
(401) 723-6510 FAX




**Suggested Retail Price:** $895.00

**Government Price:** $750.00

**ADVANTAGES:**
+ Reduces the size and number of voids in casts and investment molds.

**DISADVANTAGES:**
- Instructions are incomplete.
- Does not accommodate a semi-adjustable articulator for curing an orthosis on the articulator.
- Technicians may have to change from coarse-grain investments to fine-grain investments to fully benefit from using the vessel.

**SUMMARY AND CONCLUSIONS:**
Both the size and number of voids in casts and investment molds were reduced by approximately two-thirds in laboratory evaluations. The Wiropress SL has a maximum pressure of 50 psi, which is suitable for artificial stone and fine-grain investments but not coarse-grain investments that require a pressurized atmosphere of 80 to 110 psi to reduce porosity. Autopolymerizing resins requiring warm water will have to be placed in a low water-filled tray to fit in the vessel. Due to limited applications and price, the **Wiropress SL** is rated **Marginal** for use by the federal dental service.

(MSgt Ryerson)

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## 56-30 Aseptic Vacuum (Project 98-15)

The Aseptic Vacuum is a self-contained, counter-top, dust collecting system for chair-side use when adjusting appliances or trimming dies. It is 12.5 inches high, 10.25 inches wide, 17 inches deep, and weighs 16 pounds. The unit automatically activates the light and dust collector when the operator's hands are placed behind the safety shield. This hands-free operation reduces contamination of the unit. Also included is an adjustable 2X magnifier and tempered glass safety shield. Debris is collected in a disposable filter bag treated with an EPA-registered broad spectrum antimicrobial agent to reduce microbial contamination and cross-contamination. It is ready for use upon delivery; no assembly or installation is required. The unit has passed UL testing and has ETL and CETL certification.

**Manufacturer/Source:**
Nevin Laboratories Inc.
5000 South Halsted Street
Chicago, IL 60609
(800) 544-5337
(773) 624-7337 FAX

**Suggested Retail Price:** $785.00 Aseptic Vacuum
$15.50 (Filter bag)

**Government Price:** $510.25 Aseptic Vacuum
$11.65 (Filter bag)

**ADVANTAGES:**
+ Users reported that the dust-collector performed satisfactorily.
+ Prevents debris from contaminating the work area.
+ Hands-free operation.
+ Easily cleaned and disinfectable plastic housing.
+ Tempered glass safety shield.
+ Adjustable 2X magnifier.
+ RFI-shielded power cord prevents electrical interference.
+ Power surge protector.
+ Disposable, antimicrobial filter bag.
+ Excellent illumination level (>200 foot-candles).
+ Noise level below maximum allowable level.
+ Simple routine maintenance.

**DISADVANTAGES:**
- Placement in treatment room may be difficult where there is limited counter space.

**SUMMARY AND CONCLUSIONS:**
The Aseptic Vacuum is a counter-top dust collector that efficiently prevents debris from contaminating the operatory. Its hands-free operation minimizes contamination because it doesn't have to be touched to operate. The provider saves time by eliminating disinfection and travel time to the laboratory when adjusting appliances. The illumination level is excellent and noise level is low enough to allow normal speech. When surgical telescopes are not available, the adjustable 2X magnifier provides an appropriate level of magnification. The unit's tempered glass safety shield protects the provider from flying debris. Changing the antimicrobial filter bag is quick and simple. The **Aseptic Vacuum** is rated **Acceptable** for use by the federal dental services.

(MSgt Ryerson)

# INFECTION CONTROL

## 56-31 Dental Infection Control Survey (Project 98-42)

Infection control procedures are continually changing as more information is gathered on the risks of disease transmission in the dental setting. Two rapidly expanding areas are those of controlling disease spread and maintaining office safety. Infection control practices are also changing because of advances in technology and new products such as filters for dental water lines, and products to protect patients and dental healthcare workers from latex allergies. In order to better understand the current state of infection control practices in the United States Air Force Dental Corps, DIS performed a comprehensive survey. 82 of 88 clinics returned the survey (93.2% response rate).

**FINDINGS:** [Note: See Attachment 3 for specific responses to the survey.]

The following comments represent some of the highlights of the survey.

1. Clinical personnel are assigned to the necessary infection control duties and most clinics have a representative who has attended the USAF Dental Infection and Occupational Health Course.

2. Most clinics have available the required and recommended guidelines and standards.

3. All clinics are providing proper training to newcomers and appropriate annual training to the entire staff.

4. Several options exist for clinical attire and personal protective equipment.

5. Alcide LD/Exspor is the most common disinfectant used for impressions and dental laboratory; Wexcide is the most common disinfectant used in the dental treatment rooms.

6. A majority of the clinics have a Dental Instrument Processing Center with designated work areas.

7. Most clinics are utilizing instrument cassettes and instrument washer/thermal disinfectors.

8. All facilities are spore testing for sterility assurance; most clinics performed weekly testing.

9. A high percentage of clinics are following the recommendations to improve dental unit water.

10. Less than one percent of USAF dental clinics have staff members with a documented latex allergy.

11. All clinics have a written protocol for reporting and treating percutaneous injuries.

12. A significant percentage of clinics have immediate access to post-exposure prophylaxis for potential exposure to HIV.

**SUMMARY AND CONCLUSIONS:**
The area of dental infection control is changing daily, and it is imperative that all dental staff members stay current with the latest appropriate science-based information, such as recommendations and regulations aimed at protecting personnel and patients, occupational disease risks, and evolving

equipment technology. Today's dental practice requires vigilant efforts to protect both patients and dental workers. This study confirms that USAF dental clinics are following the concepts and design of current dental infection control methodologies.

(Col Bartoloni)

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## 56-32 Miele Clear Rinse Aid (Project 98-05)

Miele Clear Rinse Aid is a chemical agent designed to improve drying of instruments in the Miele G7781 Thermodisinfector. It is poured into the automated dispenser located in the door and automatically dispensed during the rinse cycle. When added to the rinse water, instruments are said to rinse more completely and retain less water at the end of the rinse cycle thus increasing the effectiveness of the drying cycle. Miele Clear is shipped with an MSDS, but without instructions since the usage instructions are contained in the Miele G7781 operator's manual.

**Manufacturer:**
Miele Professional
22 D Worlds Fair Drive
Somerset, NJ 08873
(908) 560-0899
(800) 843-7231
(908) 560-7449 FAX

Distributed by: Patterson Dental
(800) 328-5536
(612) 686-1600
(612) 686-9331 FAX

**Suggested Retail Price:**
$30.00 1 liter bottle (approximately 300 washer cycles)

**Government Price:**
$28.50 1 liter bottle - varies by location as the price is set by the local Patterson Dental dealer.

**ADVANTAGES:**
+ Users at three test sites reported less rust and drier instruments and burs.
+ Easy to use; G7781 automatically dispenses Miele Clear during the rinse cycle.
+ No skin/mucosal irritation reported among patients or Dental Instrument Processing Center personnel.

**DISADVANTAGES:**
- The Miele Clear refill indicator on the G7781 is difficult to read; some users replenished on a schedule rather than using the indicator.

**SUMMARY AND CONCLUSIONS:**
Miele Clear is formulated to reduce the surface tension of instruments allowing them to drain more completely during the rinse cycle. When instruments drain better, they start the drying cycle with less water on their surface and have the potential to fully dry. All the evaluators felt instruments were drier at the end of the cycle when Miele Clear was used. Also, most evaluators felt Miele Clear may increase the life of dental instruments and burs due to more effective drying and a reduction in corrosion. The automated dispensing system makes dispensing the Miele Clear in each cycle easy. However, two of the three evaluators found the refill indicator difficult to read. Evaluators compromised by adding more

solution on a regular schedule. While the Miele G7781 allows adjusting the amount of Miele Clear dispensed per cycle over the range of 1 to 6 mL per cycle, all test sites used the preset factory setting of 3 mL per cycle. **Miele Clear Rinse Aid** is rated **Acceptable** for use by the federal dental services.

(Lt Col Kane)

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## 56-33 The Effect of Dental Waterline Antimicrobial Agents on Dentin Bonding (Project 98-29)

Manufacturers of separate water systems (SWS) for dental units recommend that only sterile or freshly distilled water be used in them. They also recommend that users periodically disinfect the SWS. Published dental literature (to include newsletters) has reported that many different solutions have been used to disinfect SWS. They include: chlorine at 1:10,000[1], 0.5ppm to 20 ppm[2],1 ppm[3], and 10 to 15 ppm[4] concentrations; chlorhexidine gluconate at 1:5,000 , 1:10,000[5] and 1:50,000[6] concentrations; copper ion[7] solutions; and hydrogen peroxide.[8] 1:10 and 1:20 dilutions of commercial over-the-counter mouthrinses have also been suggested for this purpose.[4] Success in controlling bacterial colony forming units (CFUs) in dental waterlines varied with these different chemical protocols, and many of studies focused primarily on the ease of utilizing each respective protocol.[1-8] SWS antimicrobial agents have been reported to adversely affect enamel bond strength.[9] Taylor and others reported that dental unit waterline antimicrobials reduced enamel bond strengths and theorized that dentin bond strengths would be affected as well.[9]

This study investigated the effect of four proposed dental waterline antimicrobial agents on bond strength of a fifth-generation dentin bonding agent to dentin. The antimicrobial agents tested can be seen in Table 1.

**Table 1. Groups tested**

| Product | Concentration | Active Ingredient(s) |
|---|---|---|
| Distilled water (Control) | | |
| Bio 2000 (Micrylium Labs, Tempe, AZ) | Per manufacturer | 0.12% Chlorhexidine gluconate<br>12.0% Ethyl alcohol |
| Sodium hypochlorite | 3 ppm | Chloride ion |
| Listerine (Warner-Lambert Morris Plain, NJ) | 1:10 dilution | Ethyl alcohol, thymol, eucalyptol, methyl salicyclate, menthol |
| Bioclear (Waggoner Product Development, Plano, TX) | 0.224% | Citric acid |

Under the conditions of this evaluation, all antimicrobial agents affected shear dentin bond strength, with the Bio 2000 and Listerine groups demonstrating significantly lower ($p < 0.05$) bond strengths than the Control Group. Specific results can be seen in Table 2.

**Table 2. Mean shear dentin bond strengths**

| Groups | Mean shear bond strength ± SD (MPa) |
|---|---|
| Distilled water (control) | 22.59 ± 8.93 A |
| Sodium Hypochlorite | 18.13 ± 6.65 A |
| BioClear | 15.32 ± 8.95 A |
| Listerine | 13.00 ± 6.84 B |
| Bio 2000 | 12.96 ± 4.01 B |

Groups with the same letter are not significantly different at the 0.05 level

**SUMMARY AND CONCLUSIONS:** Antimicrobial agents used to disinfect SWS can affect dentin bond strengths. Under the conditions of this study, prescribed dental waterline antimicrobial solutions reduced

dentin shear bond strengths. Listerine and Bio 2000 produced significant reductions in dentin bond strengths.

(Lt Col Roberts)

**References:**

1. Abel LC, et al. Studies on dental aerobiology: IV. bacterial contamination of water delivered by dental units. J Dent Res 1971;50:1567-1569.
2. Fiehn NE, Henriksen K. Methods of disinfection of the water system of dental units by water chlorination. J Dent Res 1988;67:1499-1504.
3. Pankhurst CL, et al. The efficacy of chlorination and filtration in the control and eradication of legionella from dental chair water systems. Journal of Hospital Infection 1990;16:9-18.
4. Eleazer PD, Schuster GS, Weathers DR. A chemical treatment regimen to reduce bacterial contamination in dental waterlines. J Am Dent Assoc 1997;128:617-623.
5. Blake G. The incidence and control of bacterial infection in dental spray reservoirs. Br Dent J 1963;115:413-416.
6. McEntegart M, Clark A. Colonization of dental units by water bacteria. Br Dent J 1973;134:140-142.
7. Hesselgren S, Nedlich U. Microbial growth in dental units. Quintessence Int 1979;9:103-107.
8. Kellett M, Holbrook W. Bacterial contamination of dental handpieces. J Dent 1980;8:249-253.
9. Taylor TL, Leonard RH, Mauriello SM, Swift EJ. Effect of dental unit waterline biocides on enamel bond strengths. Abstract 9813, 1998 OSAP Annual Symposium.

# Synopsis of Dental Sealants*



| | | | | | |
|---|---|---|---|---|---|
| **COMPANY INFORMATION** | BISCO, INC<br>1100 W Irving Park Dr<br>Santa Maria, CA 93455<br>(800) 247-3368<br>(847) 534-6111 FAX | Den-Mat Corp<br>2727 Skyway Dr<br>Santa Maria, CA 93455<br>(805) 922-8491<br>(805) 922-6933 FAX | Dentsply Caulk<br>PO Box 359<br>Milford, DE 19963<br>(800) 532-2855<br>(800) 788-4110 FAX | Dentsply Ash<br>1301 Smile Way<br>PO Box 7807<br>York, PA 17404<br>(800) 989-8825<br>(800) 278-4344 FAX | Heraeus Kulzer, Inc<br>4315 S Lafayette Blvd<br>South Bend, IN 46614<br>800-343-5336<br>(219) 291-0661<br>(210) 299-6616 FAX |
| **PRODUCT NAME** | Sealant G-9200S | FloRestore | FluorShield | Delton Plus Pit & Fissure Sealant | Estiseal LC |
| **PRICE** | $34.60 (Retail)<br>$29.41(Govt.) | $76.74 (Retail)<br>$61.39(Govt.) | $86.00 (Retail)<br>$42.33 (Govt.) | $1,485.00 Cs of 12 Pkgs. (Retail)<br>$852.14 Cs of 12 Pkgs. (Govt.) | $96.70 (Retail)<br>$55.10 (Govt.) |
| **GSA CONTRACT** | No | No | Yes - #3070K | Yes - #V797P 3056K | No |
| **PACKAGE CONTENTS** | 2 – 3 ml bottles, 5 g etch | 9 – 1 g syringes & 40 syringe tips | 2 – 5 g tubes, 40 disposable brush tips, 1 brush handle, 1 mix pad, 1 – 10 ml bottle tooth condition | 50 cartridges of .4 ml sealant, 6 ml etchant gel, 1 direct delivery applicator, 1 brush handle w/brushes | 2 – 1 ml syringes trans-parent & Opaque, 1- 2.5 g syringe durafil flow shade B, 1 - .5 ml etch gel, 1 – 15 ml 60 sec taste fluoride, tips, brushes, brush holder, & instructions |
| **METHOD OF APPLICATION** | Brush on | Syringe delivery | Brush on | Syringe delivery | Syringe delivery |
| **CURING METHOD:** | Light cured | Light cured | Light cured | Light cured | Light cured |
| **COLOR** | White | A2, A3, A3.5, B1, B2, B3, C2, C3, Opaquer | Tooth colored or Opaque White | Opaque | Yellowish-Transparent White-Opaque |
| **FILLER CONTENT** | Glass & fumed silica, 52% by weight | Barium glass & fumed silica 40% by weight | Glass, 50% by weight | Glass ionomer, 38% by weight | Silica 32% by weight |
| **CONTAINS FLUORIDE** | No | Yes | Yes | Yes | No |
| **ETCH SUPPLIED** | Yes | No | Yes | Yes | Yes |
| **INDICATIONS FOR USE** | Pit & fissure sealant | Small restorations w/difficult access, repair margins, fill or repair cracks, pit & fissure sealants, etc. | Pit & fissure sealants | Pit & fissure sealants | Pit & fissure sealants |
| **COMMENTS** | N/A | N/A | N/A | Pkgs. available for self- or light- cured and in different quantities, contact manufacturer. Sold only by the case. | N/A |

*Data in this table was provided by manufacturers

# Synopsis of Dental Sealants (Cont'd)*



| | | | | | |
|---|---|---|---|---|---|
| **COMPANY INFORMATION** | Ivoclar North America<br>175 Pineview Dr<br>Amherst, NY 14228<br>(800) 533-6825<br>(716) 691-0010<br>(716) 691-2285 FAX | J Morita, USA, Inc<br>14712 Bentley Circle<br>Tustin, CA 92780<br>(800) 752-9720<br>(714) 730-0783 FAX | Pulpdent Corporation<br>80 Oakland Street<br>P.O. box 780<br>Watertown, MA 02272-0780<br>(800) 343-4342<br>(617) 926-6262 FAX | Ultradent Products, Inc<br>505 W 10200 South<br>South Jordon, UT84095<br>(800) 793-5216<br>(801) 553-4915 FAX | 3M Dental Products<br>Bldg 275-2SE-03<br>St Paul, MN 55144<br>(800) 634-2249<br>(800) 728-0956 FAX |
| **PRODUCT NAME** | Helioseal F Cartridge | Teethmate, F1 | Seal-Rite | UltraSeal XT Plus | Light Cure White Sealant |
| **PRICE** | $83.00 (Retail)<br>$37.00 (Govt.) | $135.00 (Retail)<br>$81.00 (Govt.) | $28.50(Retail)<br>$28.50(Govt.) | $43.75 (Retail)<br>$37.19 (Govt.) | $168.15 (retail)<br>$88.98 (Govt.) |
| **GSA CONTRACT** | No | No | No | No | No |
| **PACKAGE CONTENTS** | 50 Cartridges - .1 g each | 2 - 2.5 ml resin, 6 ml K-etchant gel, 50 applicator nozzles, 50 disposable brush tips, 1 brush tip handle, 10 mixing plates | 4 – 1.2 ml syringes: 1 of sealant, 1 of etchant, 1drying agent, 1 prophy pack. 8 tips | 1 – 1.2 cc prefilled Ultra-Seal XT plus syringe, 1 – 1.2 cc prefilled Ultra-Etch syringe, 2 – 1.2 cc prefilled PrimaDry syringes, 20 inspiral brush tips, 10 blue micro tips, 10 white mini brush tips, 2 black micro tips | 2-6 ml light cure white sealant, 9 ml etchant gel, 1 applicator handle, 60 brushes tips, mixing well. |
| **METHOD OF APPLICATION** | Brush on | Syringe delivery | Syringe delivery | Syringe delivery | Brush on |
| **CURING METHOD:** | Light cured | Light cured | Light cured | Light cured | Light cured |
| **COLOR** | Opaque | Opaque, Natural | Tooth shade | Opaque white, tinted translucent, A2 | White |
| **FILLER CONTENT** | Flourosilicate glass & fumed silica 42% by weight | Unfilled | Glass filler in methacrylate resins 33% by weight | Fluoride glass ionomer 60% by weight | Unfilled |
| **CONTAINS FLUORIDE** | Yes | Yes | Yes | Yes | No |
| **ETCH SUPPLIED** | No | Yes | Yes | Yes | Yes |
| **INDICATIONS FOR USE** | Pit and fissure sealant | Pit & fissure sealant | Pit & fissure sealant | Pit & fissure sealant micro-restorative material | Pit & fissure sealant |
| **COMMENTS** | N/A | N/A | Other kits available, contact manufacturer for information | N/A | Other kits & refills available for self- or light-cured, contact manufacturer for information |

*Data in this table was provided by manufacturers

# PATIENT MONITORS

| **Source** | BCI INTERNATIONAL<br>W238 N1650 Rockwood Drive<br>Waukesha, Wisconsin 53188-1199<br>(800) 558-2345 http://www.bcintl.com | | | |
|---|---|---|---|---|
| **Models** | BCI Autocorr | BCI Capnocheck Plus | BCI Mini-Torr Plus | BCI 3100 |
| **Specifications:** | | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Optional | Y |
| Blood Pressure (BP) | N | N | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y |
| Temperature | N | N | N | N |
| Electrocardiograph (ECG) | N | N | N | Optional 3 Lead |
| Capnography ($CO_2$) | N | Y | N | N |
| Respiration Rate | N | N | N | N |
| Monitor | LED | VF | LED | LCD/LED |
| Alarms | Y | Y | Y | Y |
| Printer | Y | N | Optional | Optional |
| Dual Power | Y | Y | Y | Y |
| Battery | Y | Y | Y | Y |
| Battery Use Life (hours) | 4.5 | 2 | 6 | 5 |
| Discharge to Full Charge (hours) | 6 | 4 | 4 | * |
| Size: Height x Width x Depth (inches) | 3.24x8.5x5.5 | 3.5x10x5.5 | 3.2x8.5x5.5 | 3.5x10.8x8 |
| Weight (pounds) | 1.9 | 4.8 | 3.5 | 8.75 |
| Warranty | 2 yr | 2 yr | 2 yr | 2 yr |
| Certifications IEC/UL/CSA/etc. | None | None | None | None |
| Cost: Price varies with options selected. | | | | |
| Government Low<br>High | $997<br>* | $2603<br>$2998 | $1576<br>$2050 | $1382<br>$1789 |
| Retail Low<br>High | $1295<br>* | $3295<br>$3795 | $1995<br>$2595 | $1750<br>$2265 |
| Additional Parameters | | | | |

* Not specified
CRT Cathode Ray Tube
ELD Electroluminescent Display
IBP Invasive Blood Pressure
LCD Liquid Crystal Display
LED Light Emitting Diode
NIBP Noninvasive Blood Pressure
VF Vacuum Fluorescent

# PATIENT MONITORS

| **Source** | CRITIKON<br>Division of Johnson and Johnson Medical, Inc.<br>4110 George Road<br>Tampa, Florida 33634<br>(800) 255-2500 http://www.dinamap.com | | | | |
|---|---|---|---|---|---|
| **Models** | Dinamap MPS | Dinamap TS | Dinamap YL | Dinamap Plus | Dinamap SY |
| **Specifications:** | | | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | N | Y | N |
| Blood Pressure (BP) | NIBP | NIBP | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y | Y |
| Temperature | Y | Y | Y | Optional | N |
| Electrocardiograph (ECG) | 3 or 6 Lead | N | N | Optional 3 Lead | N |
| Capnography ($CO_2$) | Y | N | N | N | N |
| Respiration Rate | Impedance | N | N | N | N |
| Monitor | Color LCD | LED/LCD | LED | ELD | LED |
| Alarms | Y | Y | Y | Y | Y |
| Printer | Y | Y | Optional | Optional | Optional |
| Dual Power | Y | Y | Y | Y | N |
| Battery | Y | Y | Y | Y | N |
| Battery Use Life (hours) | 3 | 2 | 6 | 2 | N |
| Discharge to Full Charge (hours) | 6 | 8 | 4 | * | N |
| Size: Height x Width x Depth (inches) | 18x11.75x8 | 9x7.28x6.9 | 8.75x6.6x6.6 | 9.25x7.2x8.5 | 4.9x14.8x10.8 |
| Weight (pounds) | 12.5 | 8.3 | 9.5 | 9.8 | 22.6 |
| Warranty | 2 yr | 2 yr | 2 yr | 2 yr | 2 yr |
| Certifications IEC/UL/CSA/etc. | IEC | None | None | UL,CSA | None |
| Cost: Price varies with options selected. | | | | | |
| Government Low<br>High | *<br>$7900 | $2811<br>$4457 | $2161<br>$3250 | $4534<br>$7136 | $2744<br>$3173 |
| Retail Low<br>High | *<br>$11500 | $3995<br>$6350 | $3250<br>$3750 | $5475<br>$8495 | $3895<br>$4495 |
| Additional Parameters | IBP | | | | |

* Not specified
CRT Cathode Ray Tube
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IBP Invasive Blood Pressure
LCD Liquid Crystal Display
LED Light Emitting Diode
NIBP Noninvasive Blood Pressure
VF Vacuum Fluorescent

# PATIENT MONITORS

| **Source** | CRITICARE SYSTEMS, INC.<br>20925 Crossroads Circle<br>Waukesha, Wisconsin 53186<br>(800) 458-4615 http://www.csiusa.com | | |
|---|---|---|---|
| **Models** | 506DXN/P | 506DXNT/P | 507E/P/R |
| **Specifications:** | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Y |
| Blood Pressure (BP) | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y |
| Temperature | N | Y | Optional |
| Electrocardiograph (ECG) | N | N | 3 Lead |
| Capnography ($CO_2$) | N | N | N |
| Respiration Rate | N | N | N |
| Monitor | LCD/LED | LCD/LED | LCD/LED |
| Alarms | Y | Y | Y |
| Printer | Y | Optional | Y |
| Dual Power | Y | Y | Y |
| Battery | Y | Y | Y |
| Battery Use Life (hours) | 6.5 | 6.5 | 1 |
| Discharge to Full Charge (hours) | 11 | 11 | 6 |
| Size: Height x Width x Depth (inches) | 5x6x6 | 6.7x12.5x10 | 4.9x10.1x9.8 |
| Weight (pounds) | 4.4 | 4.4 | 8 |
| Warranty | 1 yr | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | UL,CSA,CE | UL,CSA,CE | UL,CSA,CE |
| Cost: Price varies with options selected. | | | |
| Government Low<br>High | $1852<br>$2201 | $2123<br>$2472 | $4026<br>$4795 |
| Retail Low<br>High | $2390<br>$2840 | $2740<br>$3190 | $5195<br>$6790 |
| Additional Parameters | | | |

* Not specified
CRT Cathode Ray Tube
ELD Electroluminescent Display
IBP Invasive Blood Pressure
LCD Liquid Crystal Display
LED Light Emitting Diode
NIBP Noninvasive Blood Pressure
VF Vacuum Fluorescent

# PATIENT MONITORS

| **Source** | CRITICARE SYSTEMS, INC.<br>20925 Crossroads Circle<br>Waukesha, Wisconsin 53186<br>(800) 458-4615 http://www.csiusa.com | | DATASCOPE CORP<br>580 Winters Avenue<br>Paramus, New Jersey 07652<br>(800) 288-2121 | |
|---|---|---|---|---|
| **Models** | 1100 | 2200E*I*R | Accutorr Plus | Passport 5L |
| **Specifications:** | | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Optional | Y |
| Blood Pressure (BP) | NIBP | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y |
| Temperature | Y | Optional | Y | Y |
| Electrocardiograph (ECG) | 5 Lead | 3 or 5 Lead | N | 3 or 5 Lead |
| Capnography ($CO_2$) | Y | N | N | Y |
| Respiration Rate | N | N | N | Impedance |
| Monitor | CRT | LCD/ELD | LED | ELD |
| Alarms | Y | Y | Y | Y |
| Printer | Y | Y | Optional | N |
| Dual Power | Y | Y | Y | Y |
| Battery | Y | Y | Y | Y |
| Battery Use Life (hours) | 20 min | 1 | 6 | 2 |
| Discharge to Full Charge (hours) | * | * | * | * |
| Size: Height x Width x Depth (inches) | 8.5x16x18 | 6.5x13.5x30.5 | 10x7.5x7 | 9.5x13x7.5 |
| Weight (pounds) | 50 | 12 | 10 | 14 |
| Warranty | 1 yr | 1 yr | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | UL,CSA,CE | UL,CSA,CE | None | None |
| Cost: Price varies with Options selected. | | | | |
| Government Low | * | $5695 | $1703 | $3930 |
| Government High | * | $6150 | $3078 | $8420 |
| Retail Low | * | $7595 | $2600 | $6000 |
| Retail High | * | $8195 | $4700 | $12855 |
| Additional Parameters | | | | |

* Not specified
CRT Cathode Ray Tube
ELD Electroluminescent Display
IBP Invasive Blood Pressure
LCD Liquid Crystal Display
LED Light Emitting Diode
NIBP Noninvasive Blood Pressure
VF Vacuum Fluorescent

| PATIENT MONITORS | | |
|---|---|---|
| **Source** | DATASCOPE CORP<br>580 Winters Avenue<br>Paramus, New Jersey 07652<br>(800) 288-2121 | |
| **Models** | Passport XG | Passport XG<br>with Masimo SET |
| **Specifications:** | | |
| Pulse Oximeter ($SPO_2$) | Y | Y |
| Blood Pressure (BP) | NIPB | NIPB |
| Heart Rate (HR) | Y | Y |
| Temperature | Y | Y |
| Electrocardiograph (ECG) | 3 or 5 Lead | 3 or 5 Lead |
| Capnography ($CO_2$) | Y | Y |
| Respiration Rate | N | N |
| Monitor | ELD | ELD |
| Alarms | Y | Y |
| Printer | Y | Y |
| Dual Power | Y | Y |
| Battery | Y | Y |
| Battery Use Life (hours) | 1.5 | 1.5 |
| Discharge to Full Charge (hours) | 16 | 16 |
| Size: Height x Width x Depth (inches) | 9.5x13x8 | 9.5x13x8 |
| Weight (pounds) | 16 | 16 |
| Warranty | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | UL,CSA | UL,CSA |
| Cost: Price varies with Options selected. | | |
| Government Low<br>High | \$5764<br>\$9763 | \$5764<br>\$9468 |
| Retail Low<br>High | \$8800<br>\$14905 | \$8800<br>\$14455 |
| Additional Parameters | | |

* Not specified CRT Cathode Ray Tube ELD Electroluminescent Display IBP Invasive Blood Pressure
LCD Liquid Crystal Display LED Light Emitting Diode NIBP Noninvasive Blood Pressure VF Vacuum Fluorescent

| PATIENT MONITORS | | |
|---|---|---|
| **Source** | FUKUDA DENSHI AMERICA CORP<br>11725 NE 65th Street<br>Redmond, Washington 98052<br>(800) 365-6668 | |
| **Models** | DS-5300 | DS-5100E |
| **Specifications:** | | |
| Pulse Oximeter ($SPO_2$) | Y | Y |
| Blood Pressure (BP) | NIPB | NIBP |
| Heart Rate (HR) | Y | Y |
| Temperature | Y | Y |
| Electrocardiograph (ECG) | 3 or 5 Lead | 3 or 5 Lead |
| Capnography ($CO_2$) | N | N |
| Respiration Rate | Impedance | N |
| Monitor | Color LCD | Color LCD |
| Alarms | Y | Y |
| Printer | Y | Y |
| Dual Power | N | Y |
| Battery | N | Y |
| Battery Use Life (hours) | ---- | 2 |
| Discharge to Full Charge (hours) | ---- | * |
| Size: Height x Width x Depth (inches) | 7.9x11.8x5.9 | 7.7x10.2x7.8 |
| Weight (pounds) | 22 | 6.2 |
| Warranty | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | None | None |
| Cost: Price varies with options selected. | | |
| Government Low<br>High | $13450<br>$26490 | $9905<br>$12620 |
| Retail Low<br>High | $13450<br>$26490 | $9905<br>$12620 |
| Additional Parameters | IBP | |

* Not specified CRT Cathode Ray Tube ELD Electroluminescent Display IBP Invasive Blood Pressure
LCD Liquid Crystal Display LED Light Emitting Diode NIBP Noninvasive Blood Pressure VF Vacuum Fluorescent

# PATIENT MONITORS

| **Source** | INVIVO RESEARCH, INC<br>12601 Research Parkway<br>Orlando, Florida 32826-3226<br>(800) 331-3220 | | MARQUETTE MEDICAL SYSTEMS<br>8200 West Tower Avenue<br>Milwaukee, Wisconsin 53223-3219<br>(800) 558-5544 http://www.mei.com | | |
|---|---|---|---|---|---|
| **Models** | Omega 5600 | Millennia 3500 | Dash 1000 | Eagle 3000 | Eagle 4000 |
| **Specifications:** | | | | | |
| Pulse Oximeter ($SPO_2$) | N | Y | Optional | Y | Y |
| Blood Pressure (BP) | NIPB | NIBP | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y | Y |
| Temperature | N | Y | Optional | Y | Y |
| Electrocardiograph (ECG) | N | 3 or 5 Lead | 5 Lead | 5 Lead | 5 or 10 Lead |
| Capnography ($CO_2$) | N | Y | N | Y | Y |
| Respiration Rate | N | Impedance | N | N | Impedance |
| Monitor | LED | Color LCD | LCD | ELD | LCD,ELD |
| Alarms | Y | Y | Y | Y | Y |
| Printer | Optional | N | Optional | Y | N |
| Dual Power | Y | Y | Y | N | Y |
| Battery | Y | Y | Y | N | Y |
| Battery Use Life (hours) | 2 | 1.5 | 3 | ---- | 30 Min |
| Discharge to Full Charge (hours) | 6 | 12 | 3.5 | ---- | * |
| Size: Height x Width x Depth (inches) | 3.5x9.5x9.75 | 10x13.5x5.8 | 8.5x10.31x6.3 | 9.5x12.25x8.5 | 12.8x12.5x5.6 |
| Weight (pounds) | 8 | 16 | 9.7 | 16 | 16 |
| Warranty | 1 yr | 1 yr | 1 yr | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | None | None | UL,CSA,IEC, CE | UL,CSA,IEC, CE | UL,CSA, IEC,CE |
| Cost: Price varies with options selected. | | | | | |
| Government Low<br>High | $5891<br>$6610 | $1956<br>* | *<br>* | $6000<br>$10960 | $7960<br>$11200 |
| Retail Low<br>High | $8750<br>$9850 | $2995<br>* | *<br>* | $7500<br>$13700 | $9950<br>$14000 |
| Additional Parameters | | IBP, Nitrous Oxide | | IBP | IBP |

* Not specified
CRT Cathode Ray Tube
ELD Electroluminescent Display
IBP Invasive Blood Pressure
LCD Liquid Crystal Display
LED Light Emitting Diode
NIBP Noninvasive Blood Pressure
VF Vacuum Fluorescent

# PATIENT MONITORS

| **Source** | MEDICAL SYSTEMS INTERNATIONAL<br>One Plaza Road<br>Greenvale, New York 11548<br>(800) 654-5406 http://medicalsystems.com | | | MEDWAVE<br>4382 Round Lake Road West<br>St. Paul, Minnesota 55112-3923<br>(800) 894-7601 http://www.vasotrac.com |
|---|---|---|---|---|
| **Models** | SpO2 - 5001 | SpO2 - 5003 | SpO2 - 3020 | APM 205 |
| **Specifications:** | | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Y | N |
| Blood Pressure (BP) | N | N | N | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y |
| Temperature | N | N | N | N |
| Electrocardiograph (ECG) | N | N | N | N |
| Capnography ($CO_2$) | N | Y | N | N |
| Respiration Rate | N | N | N | N |
| Monitor | LED | LED | LCD | LED/LCD |
| Alarms | N | Y | Y | N |
| Printer | N | N | N | N |
| Dual Power | N | Y | Y | N |
| Battery | Y | Y | Y | N |
| Battery Use Life (hours) | 24 | 12 | 16 | ---- |
| Discharge to Full Charge (hours) | * | 4 | 10 | ---- |
| Size: Height x Width x Depth (inches) | 6.3x3.25x1.3 | 7.3x3.3x1.9 | 2.8x5.8x7.5 | 5x4.5x8.5 |
| Weight (pounds) | 9 oz | 1.19 | 9 | 5.5 |
| Warranty | 2 yr | 1 yr | 1 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | None | None | None | None |
| Cost: Price varies with Options selected. | | | | |
| Government Low<br>High | $695 | $1050 | $1450 | $5500<br>* |
| Retail Low<br>High | $995 | $1395 | $2235 | $5500<br>* |
| Additional Parameters | | | | |

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| PATIENT MONITORS | | | |
|---|---|---|---|
| **Source** | MEDICAL RESEARCH LABORATORIES<br>1000 Asbury Drive<br>Buffalo Grove, Illinois 60089<br>(800) 462-0777 http://www.mrlinc.com | | PHYSIO-CONTROL CORP.<br>11811 Willow Road Northeast<br>Redmond, Washington 98073-9706<br>(800) 426-8047<br>http://www.physiocontrol.com |
| **Models** | Porta Pak 90 | PIC system | Lifepak 12 |
| **Specifications:** | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Y |
| Blood Pressure (BP) | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y |
| Temperature | N | Y | N |
| Electrocardiograph (ECG) | 3 or 5 Lead | 3 or 5 Lead<br>Optional 12 Lead | 3, 5, or 12 Lead |
| Capnography ($CO_2$) | N | Optional | N |
| Respiration Rate | N | Impedance | N |
| Monitor | CRT/LED | ELD | LCD |
| Alarms | Y | Y | Y |
| Printer | N | Y | Y |
| Dual Power | Y | Y | Y |
| Battery | Y | Y | Y |
| Battery Use Life (hours) | 3 | 2 | 2 |
| Discharge to Full Charge (hours) | 14 | * | 6 |
| Size: Height x Width x Depth (inches) | 10x11x11 | 5x12.5x12.5 | 12.5x15.3x8.5 |
| Weight (pounds) | 27 | 10 | 13.3 |
| Warranty | 1 yr | 7 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | None | None | IEC,UL,CSA |
| Cost: Price varies with options selected. | | | |
| Government Low<br>High | $7195<br>* | $15500<br>$18495 | $6700<br>$16,000 |
| Retail Low<br>High | $7195<br>* | $15500<br>$18495 | $7995<br>$16800 |
| Additional Parameters | Defibrillator | Defibrillator, Pacer | Defibrillator, Pacer |

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# PATIENT MONITORS

| **Source** | PROTOCOL SYSTEMS, INC.<br>8500 SW Creekside Place<br>Beaverton, Oregon 97008-7107<br>(800) 289-2500 http://www.protocol.com | | | |
|---|---|---|---|---|
| **Models** | Propaq 102 | Propaq 104 | Propaq 106 | Encore 202 |
| **Specifications:** | | | | |
| Pulse Oximeter ($SPO_2$) | Optional | Optional | Optional | Optional |
| Blood Pressure (BP) | NIPB | NIPB | NIPB | NIBP |
| Heart Rate (HR) | Y | Y | Y | Y |
| Temperature | Y | Y | Y | Y |
| Electrocardiograph (ECG) | 3 Lead | 3 Lead | 3 Lead | 3 or 5 Lead |
| Capnography ($CO_2$) | Optional | Optional | Optional | Optional |
| Respiration Rate | N | N | N | Impedance |
| Monitor | ELD or LCD | ELD or LCD | ELD or LCD | ELD |
| Alarms | Y | Y | Y | Y |
| Printer | Optional | Optional | Optional | Optional |
| Dual Power | Y | Y | Y | Y |
| Battery | Y | Y | Y | Y |
| Battery Use Life (hours) | 4-8 | 4-8 | 4-8 | 5 |
| Discharge to Full Charge (hours) | 12 | 12 | 12 | 6-12 |
| Size: Height x Width x Depth (inches) | 5.1x8.3x4.4 | 5.1x8.3x4.4 | 5.1x8.3x4.4 | 6.6x8.2x7.5 |
| Weight (pounds) | 5.7 or 8.3 | 5.7 or 8.3 | 5.7 or 8.3 | 6 or 13 |
| Warranty | 3 yr | 3 yr | 3 yr | 3 yr |
| Certifications IEC/UL/CSA/etc. | None | None | None | None |
| Cost: Price varies with options selected. | | | | |
| Government Low<br>High | $2984<br>$6487 | $3881<br>$7384 | $3966<br>$7352 | $3806<br>$7010 |
| Retail Low<br>High | $3995<br>$11280 | $5195<br>$11880 | $5995<br>$12680 | $5095<br>$12375 |
| Additional Parameters | | IBP | IBP | |

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# PATIENT MONITORS

| **Source** | PROTOCOL SYSTEMS, INC.<br>8500 SW Creekside Place<br>Beaverton, Oregon 97008-7107<br>(800) 289-2500 http://www.protocol.com | | |
|---|---|---|---|
| **Models** | Encore 204 | Encore 206 | Protocol QuickSigns |
| **Specifications:** | | | |
| Pulse Oximeter ($SPO_2$) | Optional | Optional | Y |
| Blood Pressure (BP) | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y |
| Temperature | Y | Y | Y |
| Electrocardiograph (ECG) | 3 or 5 Lead | 3 or 5 Lead | N |
| Capnography ($CO_2$) | Optional | Optional | Y |
| Respiration Rate | Impedance | Impedance | N |
| Monitor | ELD or LCD | ELD or LCD | LED |
| Alarms | Y | Y | Y |
| Printer | Optional | Optional | Y |
| Dual Power | Y | Y | Y |
| Battery | Y | Y | Y |
| Battery Use Life (hours) | 5 | 5 | 200 NIPB readings @ 3 min intervals |
| Discharge to Full Charge (hours) | 6-12 | 6-12 | 12 |
| Size: Height x Width x Depth (inches) | 6.6x8.2x7.5 | 6.6x8.2x7.5 | 6.5x8.6x5 |
| Weight (pounds) | 6 or 13 | 6 or 13 | 6 |
| Warranty | 3 yr | 3 yr | 1 yr |
| Certifications IEC/UL/CSA/etc. | None | None | CE |
| Cost: Price varies with options selected. | | | |
| Government Low<br>High | $4702<br>$7906 | $4628<br>$7832 | $1129<br>$3018 |
| Retail Low<br>High | $6295<br>$13575 | $6995<br>$14275 | $1195<br>$3195 |
| Additional Parameters | IBP | IBP | |

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# PATIENT MONITORS

| **Source** | SPACELABS MEDICAL, INC<br>15220 NE 40TH Street<br>Redmond, Washington 98052-5305<br>(800) 251-9910 http://www.spacelabs.com | | WELCH ALLYN, INC.<br>7420 Carroll Road<br>San Diego, California 92121-2334<br>(800) 854-2904<br>http://www.welchallyn.com |
|---|---|---|---|
| **Models** | Ultraview 1030 | Ultraview 1050 | 52000 – 52NTP |
| **Specifications:** | | | |
| Pulse Oximeter ($SPO_2$) | Y | Y | Optional |
| Blood Pressure (BP) | NIBP | NIBP | NIBP |
| Heart Rate (HR) | Y | Y | Y |
| Temperature | Y | Y | Optional |
| Electrocardiograph (ECG) | Optional 5 Lead or 12 lead | Optional 5 Lead or 12 Lead | N |
| Capnography ($CO_2$) | Optional | Optional | N |
| Respiration Rate | N | N | N |
| Monitor | LCD | Color LCD | LED |
| Alarms | Y | Y | Y |
| Printer | Optional | Optional | Optional |
| Dual Power | Y | Y | Y |
| Battery | Y | Y | Y |
| Battery Use Life (hours) | 2 | 2 | * |
| Discharge to Full Charge (hours) | 1.5 | 1.5 | * |
| Size: Height x Width x Depth (inches) | 8.3x11.7x6.2 | 8.3x11.7x6.2 | 6.5x8.6x5 |
| Weight (pounds) | 10 | 10 | 6 |
| Warranty | 1 yr | 1 yr | 2 yr |
| Certifications IEC/UL/CSA/etc. | UL,CSA,CE | UL,CSA,CE | CE |
| Cost: Price varies with Options selected. | | | |
| Government Low<br>High | $2720<br>$7300 | $4280<br>$9728 | *<br>* |
| Retail Low<br>High | $3400<br>$9125 | $5350<br>$12160 | $1250<br>$3350 |
| Additional Parameters | | | |

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# DENTAL INFECTION CONTROL SURVEY RESULTS

Do you have an appointed officer for dental infection control?

A. Yes . . . 98.2%
B. No . . . . . 1.2%

Do you have an appointed NCO for dental infection control?

A. Yes . . . 97.6%
B. No . . . . . 2.4%

Has anyone from your clinic attended the USAF Dental Infection Control and Occupational Health Course?

A. Yes . . . 81.7%
B. No . . . . 18.3%

Does your clinic keep INCONTROL (DIS supplement to newsletter) on file?

A. Yes . . . 97.6%
B. No . . . . . 2.4%

Does your clinic have a copy of:

OSHA Bloodborne Pathogens Standard

A. Yes . . . 97.6%
B. No . . . . . 2.4%

CDC Dental Infection Control Guidelines

A. Yes . . . 79.3%
B. No . . . . 20.7%

ADA Dental Infection Control Guidelines

A. Yes . . . 74.4%
B. No . . . . 25.6%

Does your clinic have a written exposure control plan?

A. Yes . . . . 100%

Does your clinic have a newcomer's briefing for dental infection control?

A. Yes . . . . 100%

Do all staff members receive an annual briefing for dental infection control?

A. Yes . . . . 100%

Does your clinic perform periodic inspections to assess dental infection control guidelines?

A. Yes . . . 97.6%
B. No . . . . . 2.4%
If yes, how often?

Weekly . . . . . 56.4%
Every 2 weeks . . 22.3%
Monthly . . . . . 17.3%
Quarterly . . . . . 2.7%
Annually . . . . . 1.3%

Does your clinic use a pre-procedure mouthrinse before beginning patient treatment?

A. Yes . . . 61.0%
B. No . . . . 39.0%

What type of clinical attire does your clinic permit?

A. Short sleeved scrubs . . . 91.5%
B. Long sleeved scrubs . . . 33.0%
C. Clinic smock . . . . . 23.2%

What type of personal protective equipment (PPE) does your facility provide to staff members?

Gloves . . . . . 100.0%
Masks . . . . . 100.0%
Protective clothing . . . . 100.0%
Protective eyewear . . . . 100.0%
Headcovers . . . . . 76.8%
Shoecovers . . . . . 65.9%
Faceshields . . . . . 36.6%
Mask/facesheilds . . . . . 6.1%

Where are impressions and contaminated appliances disinfected prior to dental laboratory procedures?

In the operatory/professional work area…….76.8%
In the dental laboratory…..……..23.2%

Does your clinic use barriers for touch surfaces?

A. Yes . . 100.0%

What brand name disinfectant does your clinic use?

For impressions:
Alcide LD/Exspor . . . 71.8%
Dispatch . . . . . 8.7%
Bleach . . . . . 7.0%
Wexcide . . . . . 5.3%
Birex SE . . . . . 1.8%
Cavicide . . . . . 1.8%
LPH . . . . . 1.8%
Perfecto Surf-A-Cide . . 1.8%

For dental laboratory:

| | |
|---|---|
| Alcide LD/Exspor | 52.3% |
| Dispatch | 22.5% |
| Wexcide | 12.0% |
| Bleach | 6.0% |
| Wescodyne | 2.4% |
| Biocide | 1.2% |
| Cavicide | 1.2% |
| LPH | 1.2% |
| Perfecto Surf-A-Cide | 1.2% |

For dental treatment rooms

| | |
|---|---|
| Wexcide | 47.7% |
| Dispatch | 8.6% |
| Bleach | 7.3% |
| Wescodyne | 7.3% |
| Biocide | 3.7% |
| Birex SE | 3.7% |
| Cavicide | 3.7% |
| Alcide LD/Exspor | 2.4% |
| Envirocide | 2.4% |
| LPH | 2.4% |
| Vesphene | 2.4% |
| Idofive | 1.2% |
| Maxi-Spra | 1.2% |
| MicroBac | 1.2% |
| Perfecto Surf-A-Cide | 1.2% |
| Promedyne | 1.2% |
| ProSpray | 1.2% |
| SaniWipes | 1.2% |

Describe your main dental treatment facility.

| | |
|---|---|
| Dental clinic located within the MHF | 56.0% |
| Dental clinic geographically separated from MHF | 29.7% |
| Main clinic separated from MHF with smaller clinic(s) within MHF | 9.5% |
| Main clinic located within MHF with separate smaller clinics | 4.8% |

How many dental treatment rooms does your facility have?

| | |
|---|---|
| 2-10 | 15 clinics |
| 11-20 | 34 clinics |
| 21-30 | 20 clinics |
| 31-40 | 9 clinics |
| >40 | 4 clinics |

Do you have a Dental Instrument Processing Center (DIPC)?

| | | |
|---|---|---|
| A. | Yes | 91.9% |
| B. | No | 8.1% |

If yes, is your DIPC separated into a two-room configuration (clean and decontaminated sides) or three-room configuration (clean/decontaminated sides and storage area)?

| | | |
|---|---|---|
| A. | Yes | 70.8% |
| B. | No | 29.2% |

If your DIPC is only a one-room configuration, is the floor and/or walls marked to designate the separation of the clean and decontaminated sides?

A. Yes . . . 71.4%
B. No . . . . 28.6%

Do you have access to Central Sterile Supply (CSS) with your hospital/medical clinic?

A. Yes . . . . . 62%
B. No . . . . . 38%

Does your clinic use tabletop ultrasonics for instrument decontamination?

A. Yes . . . 48.8%
B. No . . . . 49.2%

Does your clinic use an instrument washer/thermal disinfector for instrument decontamination?

A. Yes . . . 81.7%
B. No . . . . 18.3%

Do you use instrument cassettes for instrument processing?

A. Yes . . . 92.6%
B. No . . . . . 7.4%

What type of instrument package documentation is used?

Event-related . . 72.0%
Date-related . . . 28.0%

What type of sterilization method(s) do you use?

Autoclave (Pre-vacuum) . . .41.2%
Autoclave(Gravity) . . . . . 37.8%
Dry Heat . . . . . 16.0%
Chemiclave . . . . . 5.0%

Do you spore test for sterility assurance?

A. Yes . . 100.0%

If yes, how often?

Weekly . . . 78.5%
Daily . . . . . 17%
2xWeek . . . 1.5%
Each load . . 3.0%

Does your clinic sterilize high- and low-speed handpieces?

A. Yes . . . . . 100.0%

If yes, which sterilization method?

Autoclave . . . . 92.1%
Chemiclave . . . . 7.9%

Does your clinic have a written protocol for reporting and treating percutaneous injuries?

A. Yes……100.0%

Are your sharps containers wall mounted or free standing?

Wall mounted . . . 88.1%
Free standing . . . 11.9%

Does your clinic have immediate access to postexposure prophylaxis (PEP-counseling, antiretroviral medications) for potential occupationally exposure to HIV?

A. Yes . . . 90.2%
B. No . . . . . 9.8%

Does your clinic have a written protocol for treating TB patients?

A. Yes . . . 75.6%
B. No . . . . 24.4%

Does your clinic ever use “single use items” more than once?

A. Yes . . . . 7.3%
B. No . . . . 92.7%

If yes, what item(s)?

Irrigating syringes, sealant and composite uni-dose ampules, single use diamond burs, and implant cover screws/healing abutments after sterilization.

Are you using any of the following methods to improve the quality of water used for dental treatment?

2-3 minute flush at the beginning of the day . . . . . 81.7%
Separate water reservoirs . . . . . 89.0%
Filters . . . . . 11.0%
Periodic chemical treatment . . . . . 75.6%
Continuous chemical treatment . . . . . 6.1%

Are you monitoring dental treatment water for microbial quality?

A. Yes . . . 64.6%
B. No . . . . 35.4%

If yes, where?

In-office . . . . . 71.7%
Sent to laboratory . . . . 28.3%

Is sterile water routinely used for all surgical procedures?

A. Yes . . . 97.6%
B. No . . . . . 2.4%

A total of 24 documented latex allergies were reported for staff members representing less than 1% of the USAF Dental Corps.

Does your clinic have a written protocol for treating latex allergic patients?

A. Yes . . . 18.3%
B. No . . . . 81.7%

What items do you offer for staff members and patients with a latex sensitivity?

Synthetic gloves . . . . . 86.6%
Powder free latex gloves . . . . . 85.4%
Latex sensitivity lecture . . . . . 28.0%
Latex free alternatives for patients . . 14.6%